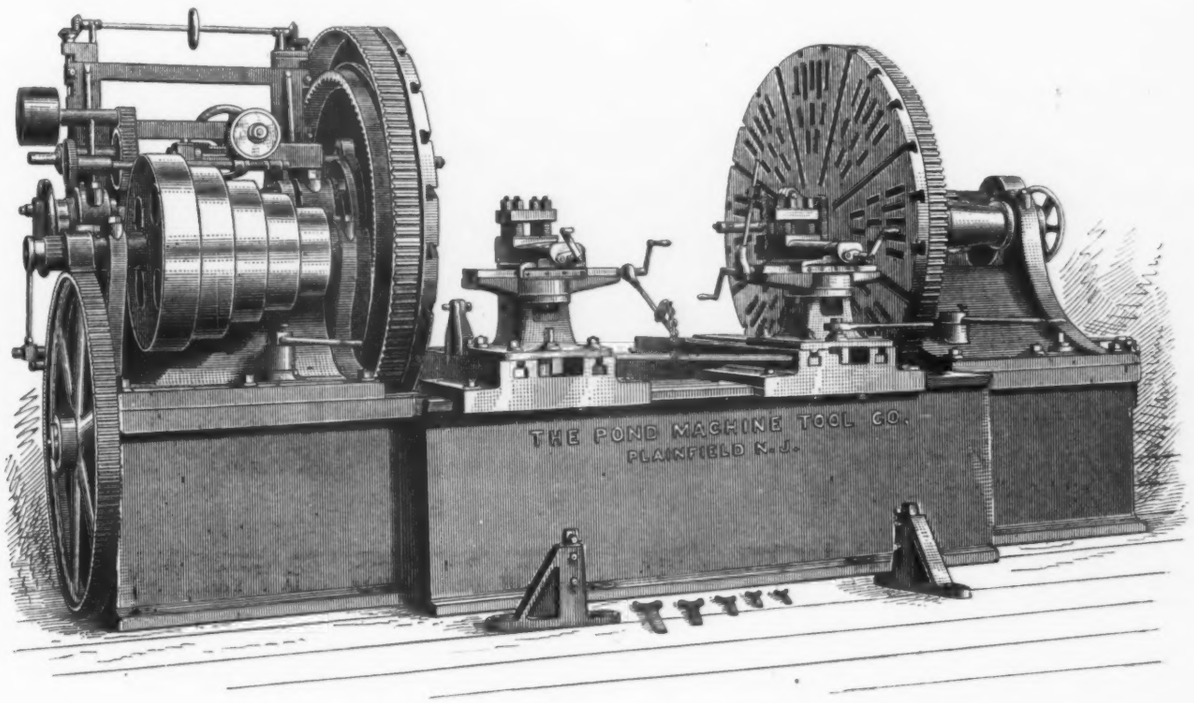
THE IRON AGE

THURSDAY, MAY 23, 1889

New Wheel Lathe.

This machine is built from new and improved designs, embodying the most modern ideas for convenience in operating, and is made very strong and stiff to meet the demands for locomotive work of the heaviest class. This lathe will swing wheels 74 inches diameter over tread. The adjustable head is moved along the bed by an improved method that permits of its being located at the exact desired point in a much shorter time than by the ordinary method. The bed consists of three inverted U-sections, the two front ones of which are carried up much higher than is usual, and all are thoroughly united by cross-pieces of same section. This form of bed permits of the use of a very short tool-post, thus materially lessening the strain which is common by reason of the leverage arising from the greater length of the long tool-post ordinarily used. This bed is of sufficient length to admit wheels on the axle fitted with the longest crank-pins without the adjustable head overhanging the end. The tool-posts are furnished with compound slide-rests, and the feeds for the same are positive and universal. The driving-cone has five steps for a 6-inch belt. Each face-plate has ten speeds, and they can be driven together or separately and at the same or different speeds. All gearing is cut from the solid. The face-plate pinions and pinion-shaft are of forged steel, the shaft being of extra large diameter. The slotted hand-wheel on the end of the internal spindle screw, from which the feeds are operated, is so locked to the main spindle that it is impossible for the internal spindle to back out and allow the axle to become loose on the centers. The countershaft is furnished with pulleys for two speeds, and is driven by a belt 6 inches wide. The 42-inch pulley should make 55 revolutions per minute, and the 30-inch pulley should make 90 revolutions per minute. Single and double quartering attachment can be furnished, and when this is done a positive device for locking the face-plate while boring is provided. This machine is built by the Pond Machine Tool Company, the agents in New York being Manning, Maxwell & Moore, of 111 Liberty street.



SEVENTY-NINE-INCH WHEEL LATHE, BUILT BY THE POND MACHINE TOOL COMPANY.

The Cruiser Charleston.

Although the Charleston is the third of the war vessels recently constructed, yet for several reasons her trial trip possesses a special interest and importance. Of her two predecessors one was classed only as a heavy gun-boat and the other as a pneumatic torpedo vessel for harbor defense. The Yorktown is of only about 1700 tons displacement, and the Vesuvius of about half as much, while the Charleston is of 3730 tons. The Yorktown's engines develop about 3650 horse-power, while those of the Charleston are guaranteed to produce 7000 horse-power under forced draft, and have been confidently expected to reach double the Yorktown's power. The armament of the Charleston will exceed that of the Yorktown by two 8-inch guns, the highest caliber as yet actually introduced into our war vessels. Thus a great interest is lent to the trials of the Charleston, it being evident that if she should come up to her contract speed there need be no anxiety as to the remaining cruisers of the new fleet now under construction.

A second source of interest in the Charleston is that she is the first war vessel ever built on the Pacific Coast. With the exception of the crank and two shafts made by Krupp, at Essen, all the steel used in her is of domestic manufacture. The beams, outside plating for the hull and the plates for the protective deck were made at Pittsburgh, but the pistons and other forgings for the engines, the frames and all the steel castings for the hull and engines came from the Pacific Rolling Mills, of San Francisco. These include such castings as a stern-post weighing 11,130 pounds, a stem weighing 13,430 and a rudder frame weighing 9420. While the Charleston is the pioneer in ship-building for the Government on the Pacific Coast, the still larger cruiser San Francisco is now under construction by the same firm, the Union Iron Works, and lately the contract for the coast-defense monitor has also been given to them.

The great advance in construction indicated by this vessel is shown by the fact that whereas in the Atlanta the contractor only guaranteed, with 664 tons of machinery, to produce 3500 horse-power, in the Charleston the guarantee is with 710 tons of machinery to produce 7000 horse-power. In other words, the guarantee in the former case was to produce a little over 5 horse-power per ton of machinery, while in the latter it is to produce nearly 10 horse-power per ton of machinery. Originally the Charleston was meant to carry in her main battery two 10-inch guns and six 6-inch, which would have been an equivalent of the battery of the British-built Japanese vessel of which she is a copy. But finally 8-inch guns were substituted for the 10-inch, so that she is now to carry only the same battery as that of the Boston and the Atlanta, which are of about 700 tons less displacement. The Chicago carries a still heavier battery, consisting of four 8-inch and six 6-inch guns. But, all things considered, the battery of the Charleston is no doubt as heavy as she needs, some of the new English vessels finding that they have gone too far in this respect. At all events, in the Charleston the new navy has a vessel of the highest engine-power yet reached by it, the Chicago only developing a little over 5000 horse-power, and she is surpassed only by the Chicago in offensive strength. With the Dolphin, the Atlanta, the Boston, the

Chicago, the Yorktown, the Charleston and the Petrel, soon to be joined by the Baltimore, our fleet of steel cruisers is rapidly taking on numbers and efficiency.

Pig-Iron for Car-Wheels.

A. W. Whitney, chemist of the Whitney Car Wheel Works, of Philadelphia, has furnished to the *Journal* of the United States Association of Charcoal Iron-Workers the following reply to the question, "What are the requirements as to physical characteristics and chemical composition of pig-iron for the manufacture of chilled-iron car-wheels?":

It is, of course, impossible to lay down any strict rule in regard to the above requirements, as the practice of wheel-makers varies much, some finding a few irons to give good results, while others use many and various irons. In either case an iron may at one time with one mixture work well, and at another time with another mixture be worthless. It cannot be said of such an iron that it is not a good ingredient of car-wheel mixtures, but merely that it will not work well with the particular mixture with which it failed. It is largely the object of the chemist to ascertain with what irons it can be used.

In general, in regard to the physical character of car-wheel pig-iron, the great requirement is uniformity. The character being once ascertained should not vary in different shipments. The chill test on the side of pig is useful; but would it not be well if furnacemen could go further and apply Keep's tests, or an equivalent, to their product? Small sample pigs might be run off from the larger pigs; 50 pounds or less melted in a covered crucible would probably give chill tests and other test pieces which would be useful as an indication of the quality of remelt of the larger pigs. Would not iron graded in this way give more uniform results? This would be an interesting question for practical investigation.

In regard to chemical composition the same may be said. If uniform as received at different times, the wheel-maker will know from his experience, or perhaps in the future from his chemist, in what cases any particular iron may be used. As a rule, I should say that good chilling irons, exclusive of white or mottled, contain between 0.56 and 0.95 per cent. of silicon, though there are some good ones with silicon above and below these limits. White irons often contain less than 0.15 per cent. of silicon. Manganese may be between 0.08 and 0.90 per cent.; phosphorus, 0.05 to 0.75 per cent.; sulphur, 0.0 to 0.15 per cent., and total carbon always as high as the above-mentioned ingredients will allow.

There are, therefore, probably several proper compositions for wheel mixture, each of which depends for its physical success upon the manner of working the iron as to fuel, blast, temperature, &c., and on the relative proportion of one element to another, as well as on the actual amount of each present. Thus some makers may allow as much as 0.95 per cent. silicon in a car-wheel by properly balancing it with other elements, or by special methods. Others using different irons will keep the silicon even below 0.6 per cent. As yet this is generally done empirically, not by deduction from chemical analysis, which, however, within certain limits, as already intimated, can probably predict the results for any given method of working. I am of the opinion that, other things being equal, a small change in chemical composition affects the result; and that a different mode of working affects the result not only directly, but indirectly, by influencing the chemical composition. The following is an analysis of a remarkably strong wheel with good chill, 33-inch double-plate wheel, weight 569 pounds, cracked slightly at twentieth blow of a Pennsylvania railroad test drop, not broken at 425th blow of same drop. It then broke at the third blow of a 600-pound drop falling 12 feet. The chill of this wheel was hard, ½ inch deep at root of flange and ½ inch deep in tread:

	Per cent.
Silicon	0.734
Manganese	0.438
Phosphorus	0.428
Sulphur	0.080
Total carbon	4.330 ? (approximate.)
Graphitic carbon	3.083 ? (approximate.)
Combined carbon	1.247 ? (approximate.)
Copper	0.029

The *Street Railway Gazette* reports that the wire rope made by the Broderick & Bascom Rope Company, of St. Louis, for the Olive street road is running on its thirteenth month of continuous service and has never stranded or had a break. This road runs trains of two coaches and a grip night and morning, and the cars are nearly always crowded. Some time ago a very interesting competitive test of cable ropes took place on the line of the Cincinnati Street Railway Company. Twenty-seven thousand feet of rope were spliced together and put in service, half of which, or 13,500 feet, came from the Broderick & Bascom factory and the other half from that of another works. The other rope wore out and had to be renewed three months before the St. Louis rope showed the least break. On the Grand avenue line in Kansas City one of the Broderick & Bascom ropes is now in service that has outlasted by one-third in time the average term of five previous ropes.

Petroleum-Burning Boiler.

The boiler of which we herewith present an engraving is designed to carry 150 pounds of steam and is rated at 4 horse-power. It measures 20 x 30 inches. Each head is formed of two steel plates placed

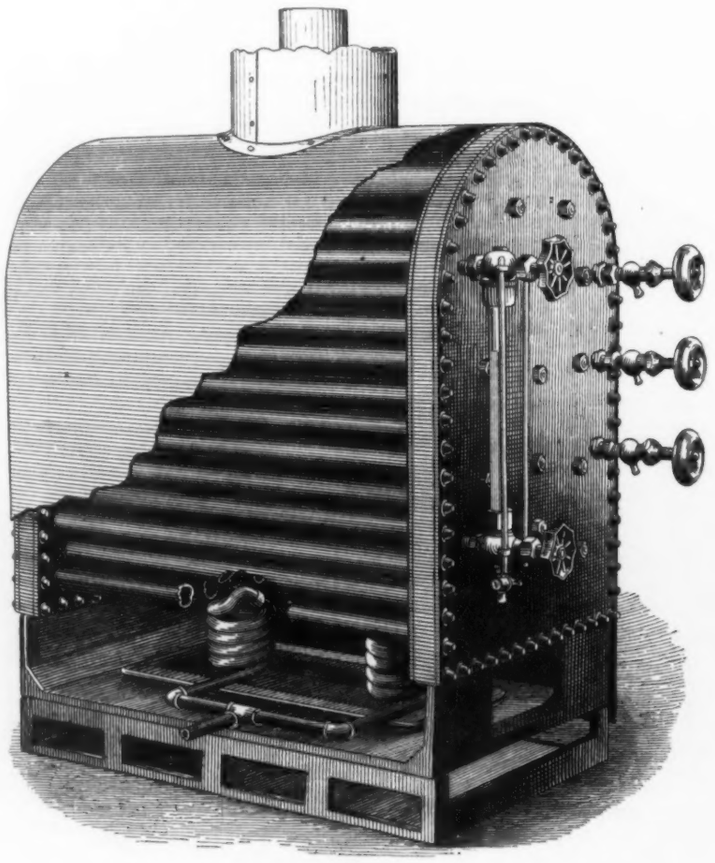


Fig. 1.

THE OSBORN BOILER FOR STEAM YACHTS.

2 inches apart and riveted to a separating channel-bar, as shown. The copper tubes have a shoulder formed on them, against which the inner steel sheets of the heads abut. The burner is intended for the use of petroleum, and is formed of a wrought-iron pipe, coiled as shown, having its upper end capped and bent so as to cross the center line of the coil. The under side of

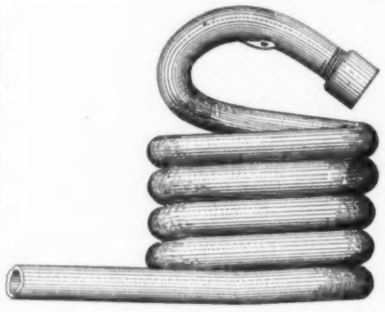


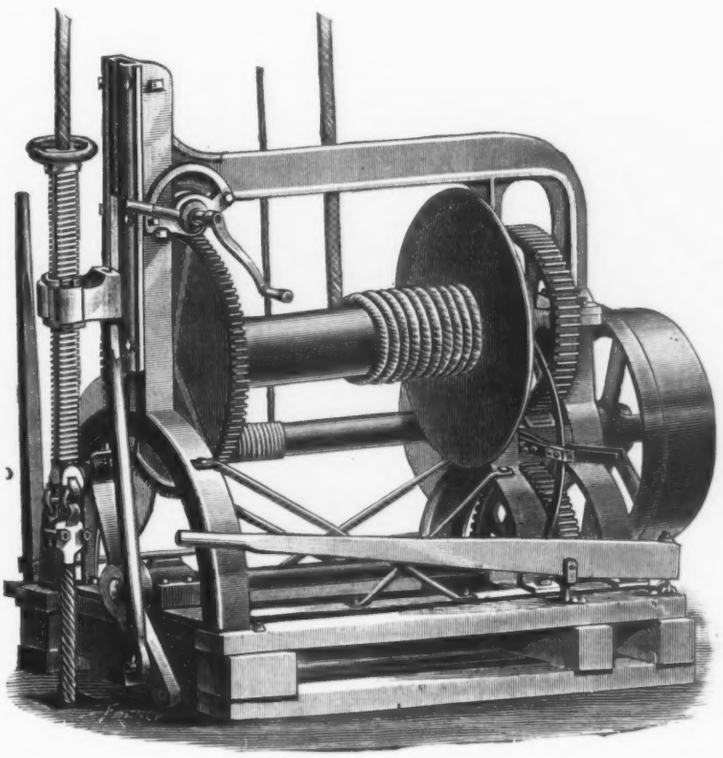
Fig. 2.—*The Petroleum Burner.*

the cross-bar is provided with a small hole. The two burners are fed with oil from a tank preferably placed near the bow of the boat, and furnished with a small hand air-pump, by means of which an air pressure of a few pounds can be formed in the tank to force the oil through the burner at starting. After the engine has been

started it is intended that the small auxilliary pump shall supply this pressure. The coil of the burner becomes heated in the downwardly-spreading flame, and the petroleum forced through it is converted into a gas, in which state it is burned as it issues from the vent. It is claimed that this arrangement of the burner, while being exceedingly simple, will generate all the heat required for quick steaming, and is in no danger whatever of clogging. The boiler is provided with the usual glass gauge and water-cocks. The sole agent handling this boiler is J. J. Brockee, of 47 Dey street, New York.

Deep-Well Drilling Machine.

In the construction of this drilling machine the aim of the Wells Machine Works, of Fostoria, Ohio, has been to build a practical deep-well machine that would operate any tools which drill by dropping of their own weight, and that would possess all the essential qualities of a drilling machine. The engraving we present shows the machine in position for work after the tool has been sunk beneath the surface. When starting the well the temper-screw is removed, the rope that suspends the drill passes over the sheave in the derrick and down through the rope grip attached to the crosshead of the machine, so that at each downward movement of the crosshead the tools are lifted, and *vice versa*. The rope is readily fed out through the rope grip while in motion. This simple means of spuding, which, in the oil well vocabulary, means the starting of the tool at the surface, is valuable where heavy beds of sand or gravel have to be passed through, as self-pumping tools with drive-weight can be used and the casing kept in advance of the tools. To change from spuding to direct drilling with the temper-screw requires but a little time. The drill rope is held by clamps hinged to the lower end of the temper-screw and is inclosed within the U-shaped recess of the screw, so that it practically forms the center of the screw. The screw is suspended by a nut journaled in the crosshead, a latch hinged in the the nut locks the nut to the crosshead, and permits the screw to feed out the rope or locks the nut to the screw, leaving the nut and screw free to turn either way. This, it is claimed, is the simplest device possible, and possesses all the advantages of the walking-beam, while doing away with its unwieldy proportions. When the tools are to be withdrawn the temper-screw and all that projects in front of the pitman are hung on one side on a balanced hook. By means of a lever attached to the eccentric through which the shaft of the belt-wheel passes the pinion of the shaft is disengaged from the spur-wheel of the rope-spool shaft. The front flange of the rope-spool is also a worm-wheel, into which the worm is thrown to lock the wheel to suspend the tools. By turning the worm, slack or tension is given to the rope, as may be required. To operate the sand-pump spool, the pinion on the belt-wheel is placed midway between the spur-wheels. When in this position the friction-wheel of the sand-pump spool is brought in contact with the raised part of the belt-wheel. A powerful foot-brake is brought to bear upon the raised part of the belt-wheel when letting the tools down. With this brake the machine can be stopped almost instantly. The machines are built upon an iron frame, resting upon a solid timber bed thoroughly bolted. The iron frame and the feet of the supports of the machine are planed, so as to make a perfect fit of all the parts of the machine. The shafts are steel, and are strong enough to stop the machine instantly without damage in case the tools catch. The length of the stroke can be readily adjusted to suit the work. The derrick is made in halves for convenience, is hoisted in position by the machine driven by its own power, and where there is proper room one man can readily erect it. It is stated that these machines have been thoroughly tested in deep work with the heaviest tools used in the oil and gas region, and that they have proved superior to any other in their line.



DEEP-WELL DRILLING MACHINE.

The Coke Trade.

Advices from the Connellsville coke region are to the effect that the demand continues fairly active, but present prices are far from satisfactory. The owners of a number of small plants in the region have decided that they cannot produce coke and sell it for $1 per ton, and as a consequence have closed down their ovens until an improvement takes place. This action has allowed the works which are still in operation to make better time than they otherwise would have done. The H. C. Frick Coke Company and the McClure Coko Company, two of the largest firms in the region, have been operating their works full time for some weeks past. A general cut in wages has been made by the small operators, which has been accepted by the workmen. As yet this example has not been followed by the large operators, but unless there is a decided improvement in the trade at an early date it is more than probable that a general reduction in wages in the entire region will be made. For the week ending on the 11th inst. out of 13,266 completed ovens in the region there were 10,585 in operation and 2681 idle. The record for the previous week showed 10,695 in blast and 2571 idle. The active ovens averaged nearly 5¼ days, against 5¼ days during the previous week and but 5 days for some weeks prior to that. The estimated production was 99,621 tons, as against 97,151 tons for the previous week. Shipments were as follows: To Pittsburgh and rivers, 1376 cars; to points west of Pittsburgh, 3453; to points east of Connellsville, 1327; total, 6156 cars. The figures for the previous week were: To Pittsburgh, 1215; West, 3348; East, 1215; total, 5778. The shipments, it will be noted, have increased 378 cars. The increase is not confined to any one locality, but is pretty evenly distributed, indicating a faint, but general, revival in demand. Prices are now as low as they have been for years, and the prospect for an improvement is not encouraging. The following are the prices now ruling, f.o.b. cars at point of shipment: Furnace coke, $1; to dealers, $1.10; foundry coke, $1.25; crushed coke, $1.50, per ton of 2000 pounds. Freight rates from ovens to Pittsburgh, 70 cents per ton; to Shenango Valley, $1.35; Cleveland, $2.80; Chicago, $2.75; East St. Louis, $3.50; Philadelphia, $2.39. Foundry prices at Western points are quoted as follows: Chicago, $4.15; St. Louis, $4.40; Louisville, $4.50; Kansas City, $6.75; Toledo, $3.85; Detroit, $3.95; Milwaukee, $4.20; Buffalo, $4. In the latter place Reynoldsville coke is quoted at $3.25 and at Chicago at $4.25. Walston coke is quoted at $4.15 in Chicago, and New River coke brings $4.25 at Louisville.

Inquiry was recently made at the Treasury Department as to whether railway iron can be imported from England for remanufacture into frogs and switches and re-exported to Mexico for use by the Mexican Central Railway without payment of duty. Assistant Secretary Tichenor has informed the inquirer that if the frogs and switches referred to shall be manufactured exclusively of imported material a drawback can be allowed on the exportation of the manufactured articles equal to the amount of duty paid on the imported material used in their manufacture less the legal retention of 10 per cent., but that if any domestic materials whatever are used in the manufacture of said articles no drawback can be obtained thereon. He said also that there is no provision of law under which the imported rails can be manufactured in bond into other articles and exported without payment of duty.

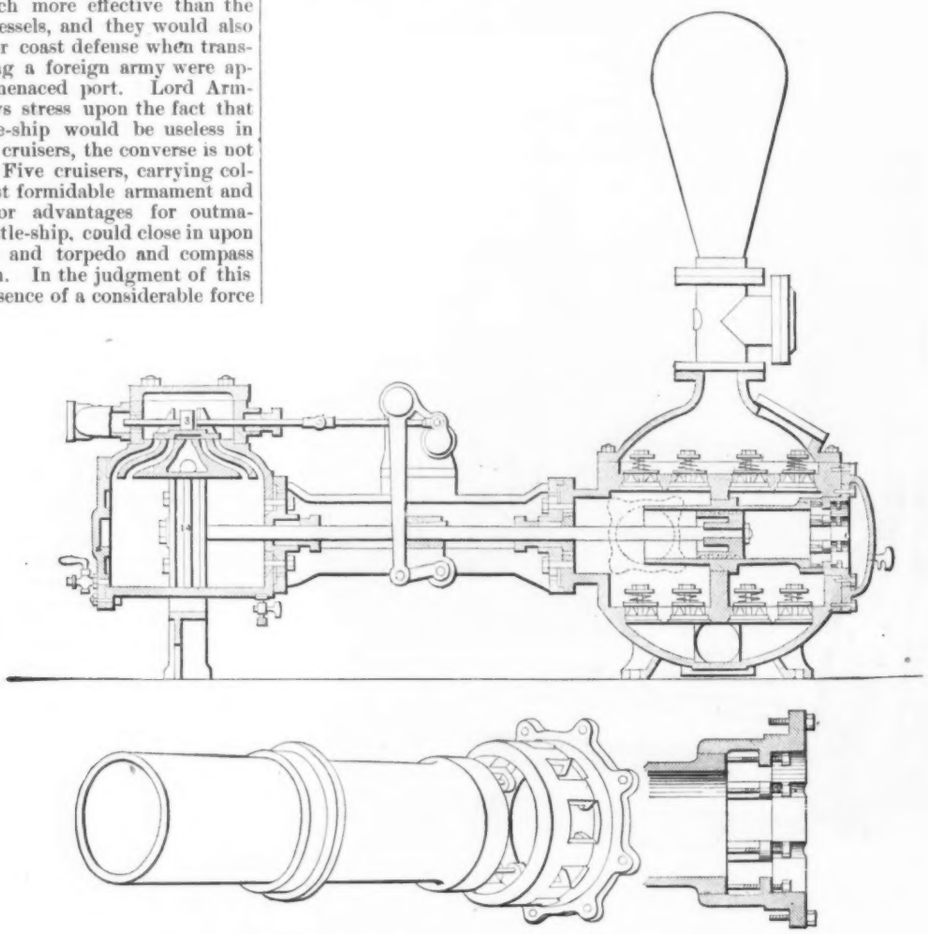
Cruisers and Battle-Ships.

Lord Armstrong contributes to the *Nineteenth Century* an article on the admiralty's ship-building programme which contains many useful hints to Americans interested in the development of their naval resources. There is no greater authority in England on all practical questions relating to modern war-ships, and the importance which he attaches to fast cruisers for defensive and offensive operations is a powerful argument in favor of increased appropriations by Congress for this class of vessels. He considers that the function of armored battle-ships, two of which are now building in American navy yards, is to fight similar vessels. For ordinary purposes of blockade cruisers would be much more effective than the big armored vessels, and they would also be superior for coast defense when transports conveying a foreign army were approaching a menaced port. Lord Armstrong also lays stress upon the fact that while a battle-ship would be useless in hunting down cruisers, the converse is not equally true. Five cruisers, carrying collectively a most formidable armament and having superior advantages for outmaneuvring a battle-ship, could close in upon her with ram and torpedo and compass her destruction. In the judgment of this expert the presence of a considerable force of unarmored cruisers would compel a hostile fleet of armored battle-ships to herd together for mutual support. It has been the habit of naval engineers and constructors in the United States to refer to the fast cruisers now under contract as possible commerce-destroyers, but not in any sense as fighting ships. Lord Armstrong does not share this view. He believes that they can successfully attack, when in sufficient number, the most powerful battle-ships, whether of the turret or of the barbette system.

Assets of the Reading Iron Works.—The appraisers of the property of the Reading Iron Works are about completing their work. It is found that the assets of stock on hand will foot up more than was supposed. Among the items are some 9000 tons of pig-iron, worth about $125,000. By reason of the stoppage of the works many valuable orders are being lost. A gentleman from New Orleans was here this week who would have placed an order for a $45,000 cotton press, but, owing to the uncertainty as to when the works would resume, he was obliged to take it elsewhere. Large orders for sugar-making machinery have also gone elsewhere.

Water Cylinder of the Buffalo Steam Pump.

Unless otherwise ordered, all of the pumps of the Buffalo (N. Y.) Steam Pump Company are provided with the new water cylinder, of which we present a vertical longitudinal section. The improvement consists of an auxiliary sleeve which supports and holds the removable water barrel or sleeve. It is bolted against the head of the water cylinder and is bored to receive the end of the water barrel. Lugs cast on the inside of the sleeve are tapped for set screws, which are set up against the water barrel, holding it firmly against the partition in the water cylinder, which is bored and faced to receive it. It will be seen from this that the water barrel has two points of bearing, thus giving rigidity to the barrel and holding it in line. It is well-known that all working barrels wear on the lower side first; in this case the barrel can be easily turned so that the wear will be alike on all sides. They are made of iron for ordinary purposes and of composition when used for pumping acid. The pistons, working barrels and auxiliary sleeves can be removed without disconnecting the piping.



NEW WATER CYLINDER OF THE BUFFALO STEAM PUMP.

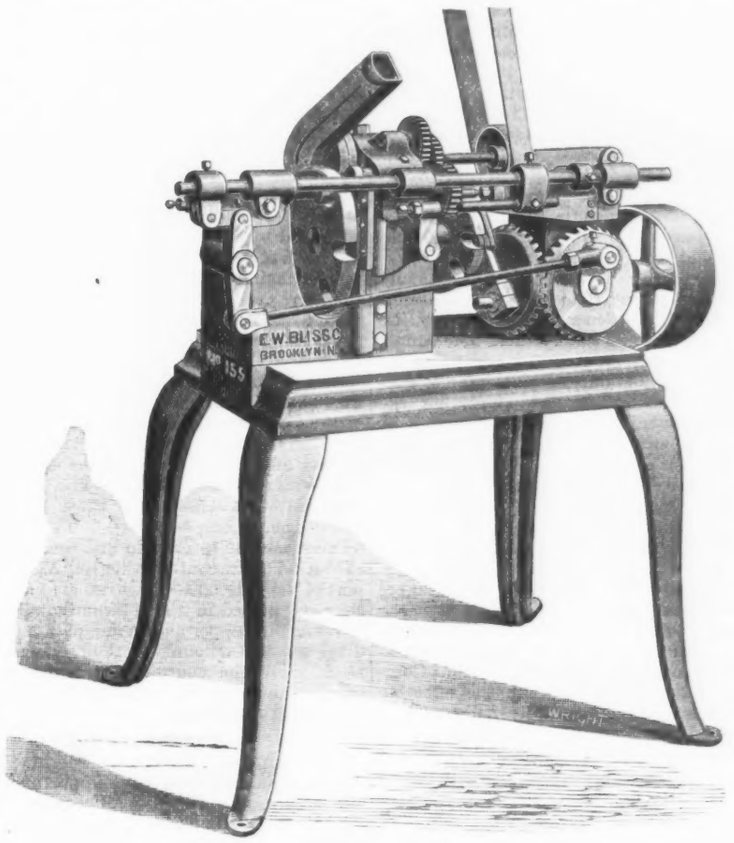
One of the most extensive newspaper expeditions ever projected in this country is that which the Scripps League of Western newspapers will send out during the coming July. As Congress took no steps toward sending American workingmen to the Paris Exposition with a view to examining the advance of mechanical arts, this newspaper syndicate stepped into the breach and has undertaken the work which Congress overlooked. They propose to spend anywhere up to $25,000 in paying all the expenses of 50 American workingmen chosen from St. Louis, Cincinnati, New York, Boston, Detroit, Cleveland, Chicago and other manufacturing points. The details of choosing the men who are to accompany the expedition are now being arranged, and it is not unlikely that representatives from this city may be among those who accompany it. All trades will be represented, including iron-workers, car-workers, ship-builders, carpenters, molders, printers, &c. All workingmen's organizations are invited to correspond with the Manager Paris Expedition Scripps League, Detroit, Mich., concerning the selection of men.

The Aurora Nail Works, one of the largest manufactories in the State of Indiana, has contracted to move to Merion to secure free gas. The factory expects to employ 500 men.

Beginning June 1 the Canadian Pacific will put on a line of steamers from Chicago to Sault Ste. Marie and form a new seaboard line. The whole line will be out of the jurisdiction of the Interstate act and compete directly with the Grand Trunk. The latter line has a slight advantage, as its lake lines to Sarnia, Midland, &c., are longer. Chicago east-bound lines will get no export business while navigation is open. This looks like war between the Canadian Pacific and the Grand Trunk, as there is nothing to hinder cut rates.

Automatic Trimming Machine.

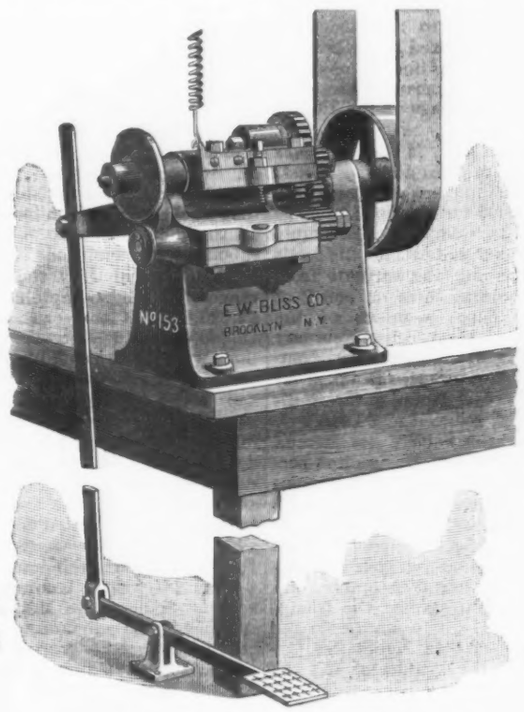
The accompanying engraving represents a new machine for trimming lamp collars and other brass shells, pill and ointment boxes, covers for baking-powder and other round cans. The operation of the machine is entirely automatic, the shells, as they come from the die being placed in a shute over the feeding-disk, from which they are taken one at a time, carried into position in front of the trimming cutters, securely clamped, trimmed, and thrown out at the rate of 25,000 or more per day. The makers claim that because of the perfection and rapidity of its work this machine is invaluable to manufacturers who produce large numbers of the articles above mentioned, and by reason of its rapidity reduces the cost of trimming to a minimum.



AUTOMATIC TRIMMER.

TRIMMING AND BEADING MACHINE.

Among the latest machines put on the market for use in the manufacture of sheet-metal goods is the trimming and beading machine herewith illustrated. It can be arranged to run by either hand or steam power, and is used for trimming and beading sheet-metal boxes, covers, collars, &c., 1 inch in diameter and larger. Round, oval, oblong, square or irregular shaped work may be done on this machine provided the corners are round. With suitable rolls and gearing it may be adapted for crimping, swedging and mouthing, as well as trimming and beading. The machine is very strongly built, has steel shafts, cut gears, and means of adjustment are provided to keep the cutters in proper position. Both of these machines are built by the E. W. Bliss Company, of Brooklyn, N. Y.



TRIMMING AND BEADING MACHINE.

It is stated on very good authority that there are some differences in the ranks of the Western Cut-Nail Association, which is composed almost exclusively of nail manufacturers of Wheeling, W. Va. and immediate vicinity. Charges of bad faith have been made against certain members, and these have been followed by the resignation of several firms, which has weakened the organization. It is claimed that the influence of the association on the nail market has been limited, and that the members of the association are commencing to realize it. There is not a nail factory in the Ohio Valley being operated to its full capacity, and some of them have not made any nails for weeks. This condition of affairs has, no doubt, considerable to do with the present condition of the Western Cut-Nail Association.

The Lehigh Valley Iron District.

A press dispatch from Allentown, Pa., quotes William H. Ainey, president of the Lehigh Iron Company, of Allentown, and a prominent banker, on the probable effect of the reduction upon the smaller furnaces in the Lehigh Valley as follows:

The effect upon the smaller furnaces may be somewhat more hurtful than to the Thomas Company, but it is probable that all will be affected alike or substantially so. The reduction had been largely anticipated, and many of the smaller furnaces for several weeks past had been freely selling at about the figures now named by the Thomas Company, simply because it was necessary because of Southern competition to sell at this price or not at all. It is not now thought that the reduction will result in any furnaces going out that are now in. It seems to be the general feeling of the furnacemen here that they must hold their markets and meet Southern competition now or abandon the fight for good. In the hope and expectation that the railroads will ultimately realize that it is in a large measure their fight as well as the furnaces', the battle is likely to go on, and any further reduction by the Southern furnaces will be met by a similar reduction here.

The Lehigh Valley lost its prestige as the largest iron-producing center because of excessive freight charges and fuel cost. When the late David Thomas, of Catasauqua, first succeeded in using anthracite coal for smelting iron ores away back in the forties, hematite ore could be mined and delivered at the furnaces here at $1.25 a ton, and other materials correspondingly low. The books of some of the furnaces in this region show that anthracite coal cost them before the war only $1.75 to $2 a ton delivered at their works, but coal combinations and the excessive and inordinate greed of the railroads changed all this. These hematite ores now cost from $2.50 to $3 a ton at the works. It is the superior quality of these ores which has given to the Lehigh irons their high reputation for excellence as foundry iron. But

the fierce competition which has prevailed in the market has made it necessary to use less and less of these local ores. During the past year large quantities of Lake Superior hematites have been brought here.

WRECK OF THE COMPTOIR.

Its Relations with the Societe des Metaux.

The report read at the meeting of shareholders of the Comptoir d'Escompte is a curious and instructive document. Being drawn up by judicial officers, it possesses a sincerity that would have been wanting in a report by the old directors, who would have been disposed to extenuate their acts; in fact, with the exception of the names of the parties who were behind the Société des Métaux on the formation of the ring, nothing of interest has been concealed or disguised. The report is of great length, occupying over 13 closely-printed newspaper columns. The London *Economist* gives a brief outline of the history of the relations between the Comptoir and the Société des Métaux. These commenced in October, 1887, with an operation in tin, the success of which induced the latter company to undertake a similar speculation in copper on a much larger scale. To obtain the control of the market the stocks were first bought up, and it was then necessary to secure the production of the mines; but the funds of the company consisted of only £120,000 out of the capital of £1,000,000, the rest being represented by the plant, buildings and good-will of the firms purchased on the formation of the Société des Métaux and £800,000 raised by debentures. M. Denfert Rochereau, who was a member of the board, was also manager of the Comptoir d'Escompte, and it was to that establishment that M. Secrétan, director of the Société des Métaux, applied when the mines demanded a guarantee for the engagements entered into by him. The first signature given by the Comptoir d'Escompte was in December, 1887, to the Anaconda mines. This was followed by others on January 4 and March 13, but no mention of these operations was made in the minutes of the board meetings of the Comptoir.

The next step taken by M. Secrétan was to form a syndicate of capitalists, at first 16 in number, who undertook to advance a sum of £2,800,000 for a period of one to three years. The Comptoir d'Escompte was to act as banker and call for the funds as required, receiving the warrants from the mines, and holding them on behalf of the syndicate. Three members of the group, however, withdrew before February 1, 1888, when the arrangements were completed, but the place of one was taken by a new adherent. The capital of the syndicate was, however, reduced to £2,210,000, and of that sum the Société des Métaux entered for £600,000 and M. Secrétan personally for £480,000. Neither that company nor M. Secrétan furnished their share of the capital when a first call of 20 per cent. was made on the syndicate, and the £216,000 they had underwritten was provided by the Comptoir d'Escompte, and without any margin to protect the Comptoir in the event of a depreciation in the value of the copper. In March five foreign firms joined the syndicate, and the total of the advances to be made by the group was raised to £2,505,000. The Société des Métaux then increased its capital by the issue of 50,000 new shares of £20 at £30; but in the meantime the Comptoir had made a further call of 20 per cent. on the syndicate. The minutes of the board meeting of the Comptoir d'Escompte, held on March 13, entered for the first time into details of the operations that had been apparently until then conducted exclusively by M. Secrétan and M. Denfert Rochereau. The director of the Comptoir then obtained authorization to guarantee two new contracts with mines in America, on his representations that it was a mere formality, as the Société des Métaux, with its new capital, possessed resources of its own amounting to 4,000,000 of francs. The risk, he said, would not exceed £80,000, and would be spread over a period of three years. This operation the judicicial administrators refer to especially as being a violation of the Comptoir's statutes, which interdicted the management from entering into engagements for more than 90 days.

A fortnight later the Société des Métaux asked the Comptoir to guarantee contracts with the Cape Copper, Mason & Barry, Rio Tinto, Tharsis and other mines. The copper was to be delivered to the agency of the Comptoir in London, and M. Denfert Rochereau pointed out to the board that the Comptoir would be secured against loss by the engagements of the Société des Métaux and by the possession of the metal itself. The embarrassments were already commencing, for besides the copper purchases, the speculation in tin had never been liquidated, and the Comptoir was exposed to a loss of £880,000 under that head. A further call of 20 per cent. of the advances from the syndicate was made by the Comptoir, but at the same time a further fresh sum of £3,120,000 was guaranteed under a contract with the Rio Tinto Company. At the end of May the effective advances by the Comptoir amounted to £5,554,000, of which £1,124,000 were unsecured. At the end of June the Comptoir was in such straits that it had to obtain from the syndicate permission to pledge warrants it held for them, and which represented the value received for the advances made by the syndicate. Those warrants were employed to obtain advances from the Bank of France and other establishments. The syndicate which had engaged to advance the £2,480,000 to the Société des Métaux then demanded that the affairs in tin should be disjoined from those in copper, in consequence of which M. Secrétan engaged to transfer land of a value of £120,000, and the Société des Métaux acknowledged its liability for a sum of £628,000. The Comptoir agreed reluctantly to guarantee new contracts presented by the Société des Métaux, while M. Secrétan endeavored to maintain the confidence of his associates by assurances that the English founders had used up all the old copper and would be forced to submit to the conditions of the company.

At the end of July the unsecured advances of the Comptoir amounted to £2,320,000; at the end of October to £2,780,000. In December the negotiations with the object of forming an English company to take over the stock of copper had fallen through, and the Comptoir threatened in vain to refuse to make any further payments on behalf of the Société des Métaux. M. Secrétan replied that such a step would bring about an immediate collapse. At the end of December the advances amounted to £6,880,000, of which £3,480,000 were unsecured. In January the Comptoir was compelled to borrow £840,000 to continue the business of the Société des Métaux. The next sacrifice it was called on to make was to part with warrants representing a security of £1,520,000 to permit the Société des Métaux to raise a loan of £1,000,000. This was on February 5 last. In return for that concession, M. Secrétan engaged to sell from March 1 12,000 tons of copper monthly by public sales, if unable to find purchasers privately; but that arrangement was superseded by the formation of the Société Auxiliare des Métaux, which was to take over 75,000 tons of copper at the price of £70 per ton, and pay over the value to the Comptoir d'Escompte. That contract was, however, only partially carried out, and as the Comptoir had subscribed a part of the capital of the new company, the effective reduction in the advances to the Société des Métaux was of insignificant amount.

The events that followed are well known: A sudden drop in shares of the Comptoir d'Escompte led to withdrawals of deposits, the embarrassments of the Comptoir having become a matter of public rumor; next came the suicide of M. Denfert Rochereau and the run on the bank. At the end of March the total sum advanced by the Comptoir to the Société des Métaux was £5,860,000, against which there remained 67,827 tons of copper. If this were realized at £40 per ton the loss would amount to £2,713,000. If the price realized were lower the loss would be greater. Some minor endorsements of warrants would increase the loss to above £3,200,000; consequently the entire capital of the Comptoir, which is £3,200,000, has been swallowed up. The Comptoir had further guaranteed the payment of future deliveries of 320,000 tons. The judicial administrators believe that those engagements may be canceled. The mine owners have no interest in insisting on the execution of the contracts of sale. As the report of the judicial administrators remarks, they are placed in the alternative of delivering the copper and being paid a dividend on the amount of their claims, or abandoning the contracts, in which case the guarantee of the Comptoir would become void *ipso facto*.

The Supreme Court of Florida has rendered a decision of vital importance to the public and to railroad corporations. The Board of Railroad Commissioners in 1887 fixed the rates for the Pensacola and Atlantic Railroad Company, which the company asserted were too low to enable them to earn enough revenue to pay their operating expenses, and they refused to adopt the rates fixed by the commission. The State of Florida, at the instance of the commission, brought suit against the railroad to recover the penalties provided by statute, and obtained judgments in the lower court for several thousand dollars. The railroad company appealed, and the Supreme Court now reverses the judgment of the lower court, holding that a reduction by the Legislature or commission of the rates of a railroad to a point too low to permit them to earn operating expenses is a deprivation of property without due process of law and without just compensation, and is confiscation and in conflict with the State and Federal Constitutions. This is the first decision of the kind by a court of last resort.

Forest fires of unusual magnitude for the spring months have recently swept over various sections of the country. They have been particularly destructive of property in Michigan, Wisconsin and Minnesota during the past week. Quite a number of iron-mining companies have been sufferers through the burning of timber which had been cut for use in the mines, the losses of single companies amounting in several cases to many thousands of dollars, which will seriously impair their chances for profits on the season's operations. It is not known how far the stock of cord-wood has been damaged which had been secured by the charcoal furnaces, but it has not escaped. The fall of rain has been much below the average for the season, making the forests very dry, so that it is very difficult to check fires when once started.

The Fassett prison-labor bill has gone to Governor Hill for his signature.

THE WEEK.

The complaint of hard times in California, heard for a few weeks past, is attributed to low prices of produce and holding for an advance. Of the fruit crop, which is a feature in California agriculture, 300,000 cases are waiting shipment in consequence of high rates of freight. Viticulturists are discouraged by low prices for wine. On the other hand, the promise of extraordinary crops is very cheering. Even with lower prices for wheat and barley it is figured out that the returns will equal $67,000,000, nearly doubling the receipts of 1888.

Chief Engineer R. L. Harris, U. S. N., one of the officers designated to test the new cruiser Charleston, died at San Francisco the 16th inst. of pneumonia.

The locomotive which the Pennsylvania Railroad Company imported from the shops at Crewe, England, and have been testing for the last two or three weeks, has not given satisfaction. It is in charge of an English engineer and a machinist from the shops at Crewe, and can make excellent speed with a light train, but with an average train, like the New York and Chicago limited, it is out-distanced by the Pennsylvania locomotive. When a stop is made too much time is lost in getting the English locomotive under way again. Almost its only point of superiority is the contrivance for saving fuel.

Princeton College has initiated a new course on electrical engineering.

The President's new appointments include Solomon Hirsch, of Oregon, to succeed Minister Straus at Constantinople, and John Jarrett goes as consul to Birmingham. Mr. Jarrett has been long known from his connection with the iron and steel industries. Thomas H. Sherman, Secretary Blaine's private secretary, takes the consulship at Liverpool.

In Amsterdam, the world's diamond market, the proprieters of the largest lapidaries report that America leads in buying the choicest gems.

The ubiquitous "English syndicate" that is always buying up cattle ranches, mining lands, breweries, &c., has purchased 400,000 acres of timber land, mills and other property in Florida, paying upward of $1,500,000.

The opinion is expressed that beyond a protest from the new Chinese Minister, who will arrive in Washington about September 1, that Government will acquiesce in the practical application of the Scott Exclusion act passed by Congress.

More than 100 persons in New Haven were dangerously poisoned by eating cream from freezers which had been in disuse since last summer and were much corroded.

The scarcity of ships and continued high sales of freight operate to encourage ship-building in the Eastern States, which is receiving a new impetus.

The hardships experienced by importers of merchandise and manufacturers in the ordeal of the Custom House is the theme of a New York commercial editor, who charges that the holdor of a foreign invoice is often treated as one having no rights. "Great as may be the frauds on the revenue at the hands of dishonest importers," he says, "we believe the total amount that is illegally exacted by overestimates of value and unwarranted applications of high rates exceeds the sum that is lost through the knavery of the dealer. The public hear most exaggerated stories of the one side, but the others are compelled to a great extent to suffer in silence. Their story is not heard, and they have no way by which their wrongs can be redressed." In all the processes of warehousing, appraising, &c., there is a strong temptation to practices that savor of extortion.

In consequence of the invention of improved machinery for the manufacture of linen thread, a company has been formed in New York which expects to compete successfully with foreign mills and to be at work in September next. The new process is known as the Boyce process, and is very simple.

The Spanish-American Commercial Union, lately organized, and which last week established headquarters in Wall street, expects to be recognized as a sort of Spanish-American Chamber of Commerce. It is the intention to establish frequent and speedy communication with South American ports and direct banking facilities between North and South America. The trade of the Spanish-American countries reaches the grand total of $450,000,000 per annum, and of this, at present, the United States has only about 11 per cent., England and Germany dividing the remainder. The members of the union will make an effort to bring this immense foreign business to the port of New York.

New Orleans is encouraged by the recent growth of her foreign import trade, which in April was larger than for any corresponding month since the war. The returns from the West Indies and Latin America are particularly satisfactory, the imports from these countries being $1,911,512, against $6,072,400 for the entire year of 1887. The exports are as large as ever and the coastwise trade as good.

The site of Albany was originally called Oranje, not Aurania, as commonly believed. An investigation of the subject shows that the blunder grew out of a similarity of sound, the name given by the Dutch having been in honor of the Prince of Orange. As it sounded when pronounced by a Dutch tongue like Aurania, many inferred that this was the orthography.

The proceedings of the Samoan Conference in Berlin give promise of an amicable settlement of all differences between the three nations there represented.

The new Post-office and United States Court-house Building which has been erected in Baltimore at a cost of about $2,000,000, will be ready for occupancy next September.

The superb new steamer, Connecticut, for the Providence line, will be completed at Cramp's this week, at a cost of $625,000.

There are 6,000,000 acres in the Cherokee lands which the Government is negotiating to buy. At $1.25 an acre this will bring the tribe $7,500,000. The Cherokees are not rich in invested funds, though notably thrifty in their tribal and individual dealings. All the funds invested for their benefit and held for them in the Treasury—national, school and educational—amount to about $2,500,000. The sale of the Cherokee outlet will at once increase their national wealth to $10,000,000 and make them the wealthiest tribe in the United States.

The Canadian Pacific's new line across the State of Maine is now virtually completed, thus securing for that corporation a line extending from the Pacific to the Atlantic. The route is from Megantic, Canada, southeasterly across the State, around the foot of Moosehead Lake to a point on the Maine Central known as Mattawamkeag, about 60 miles from the New Brunswick line. From this point running rights were obtained over the Maine Central, with connections to the Maritime Provinces. Next winter this new line will be utilized for winter business, but during this summer only a fast mail service will be established, and an effort made to open up the coal mines of Nova Scotia. New iron bridges will be built, one by the Philadelphia and Reading Railroad on the Richmond branch, and another by the Lehigh Valley near San Ringgold.

With well-directed efforts the island of Malta, according to a consular report, might become a profitable market for American-made articles, such as very light plows, hardware, including mechanical tools, especially those used in carriage-making, cheap platform scales, clocks, sewing-machines and oil stoves.

Speaking in reference to a statement which appeared in a San Francisco paper to the effect that Esquimault, British Columbia, was being made into a second Gibraltar, a Cabinet minister at Ottawa stated that such a statement was untrue. "What sensational nonsense," said the minister, laughing. "If the United States have any objection to Esquimault being fortified they can retaliate by building a fort directly opposite." The principal work in progress at Esquimault, he explained, is a gearing dock for the repair of British men-of-war.

G. E. Ruther, of Bridgeport, Conn., claims to have discovered a new system whereby a material reduction of labor in the Fire Department may be brought about. It is called the electric fire-engine, and consists of a motor, to take the place of the present steam-engine. The motors would receive their power from the dynamos of the electric lighting companies. Mr. Ruther's idea is to lay down wires from the nearest dynamos to boxes placed in close proximity to every hydrant. The instant an alarm of fire is sounded an automatic arrangement would start, the dynamos supplying the power. On the arrival of the engine at the scene of the fire a connection of the wires would be made and the pumps set to work immediately. Chief Bonner says that of the many electric substitutes for steam-power presented to him none of them, thus far, have been found both practical and trustworthy.

The Berlin Bridge Company contracted to build a bridge over the river at Sheldon, and they in turn contracted with the Vermont Construction Company to build the abutments and piers. Subsequently the bridge was carried away by high water and ice, and the Berlin Company brought suit to recover from the Vermont Construction Company, alleging defective workmanship by the latter in connection with the bridge masonry. The jury, at St. Albans, brought in a verdict on the 15th inst. for the plaintiffs in the sum of $5875. Numerous exceptions were taken and the case will doubtless go to the Supreme Court.

In the import trade of Paraguay the United States have no share beyond contributing a few agricultural implements and a little lumber. The American consul, Mr. Hill, says respecting prospects for trade: "There is at present, as is well known, no direct line of steamers from any American port to the River Plate. All goods of American manufacture destined for Paraguay must needs be twice transshipped, once at Rio de Janeiro and again at the mouth of the Plate. Again, here, as elsewhere in South America, business is done on long credits, six months and in some cases still longer time being granted. The English and Germans are anxious to do business on these terms. My correspondence with American firms would seem to indicate that our people are not." Mr. Hill says that trade amounting to about $4,000,000 annually is worthy of

the attention of Americans; that the era of progress and prosperity in that country is just dawning, and that the Government would cordially support endeavors to establish trade relations.

A syndicate of Philadelphia capitalists, headed by Mr. Thomas Cochran, is reported to have purchased the graphaphone rights for the world outside of the United States and Canada. The price paid was $500,000.

Six new street railroad lines for the city of Philadelphia have filed their articles of incorporation. A bill authorizing elevated railroads in Boston was killed in the Massachusetts Legislature.

A new railroad line into New York is contemplated by a combination of the Housatonic and New England routes. The plan comprises a water route for steamers of 36 miles from this city to Wilson's Point, near Norfolk, Conn., where they will connect with the Housatonic Railroad.

The fine steel steamer Alaskan, built by John Roach for the Oregon Railway and Navigation Company, foundered in a gale on the Oregon coast and many of her crew were lost She cost $350,000, and was one of the swiftest boats on the coast. A dispatch says her upper deck suddenly lifted and she broke in two.

Governor Ames, of Massachusetts, having recommended the removal of the old machinery in the prison of that State, a legislative committee are visiting various States in search of information which may aid in pursuing the wisest course.

The new consul to Honolulu, Henry W. Severance, was consul at San Francisco for the Hawaiian Government and is well informed respecting the affairs of the Sandwich Islands.

In the new addition to the American Museum of Natural History there will be the largest box or riveted girders ever used in the construction of a building. These girders were designed by J. Cleveland Cady, the architect, to support the floors and partitions, the object being to give unobstructed floor space. There are 28 of these girders, measuring about 62 feet in length, and weighing 40,000 pounds each. They were landed on the North River front of the city, in the neighborhood of Fiftieth street. Ordinary trucks having been taxed in vain to transport them to their destination, the contractors found it necessary to construct a tramway across the square from Ninth avenue to the building.

Mr. Wannamaker, the Postmaster-General, pays tax upon an annual business of more than $10,000,000 and heads the list of tax-payers in Philadelphia. There are two others in that city who do a business exceeding $5,000,000 annually.

The latest fad in boat-building is to "strike" a boat from a die, virtually in one piece of mild steel, with no rivets except where fittings have to be attached at bow and stern. The whole thing, it is said, depends upon the mildness of the steel to be employed, for in the construction there is no mechanical difficulty if only the plates will stand the bending and the force employed.

A crew of 75 men are now at work in the Hudson River tunnel, reinforced with English capital, and the excavation will soon go on from the New York extremity in the north and south tunnels alike.

A cargo of 640 tons of steel rails manufacturered by the Edgar Thomson Works for the Missouri Pacific Railroad was sunk in deep water in the Mississippi River near Grand Tower two months ago. Divers in submarine armor recovered all but 90 tons.

MANUFACTURING

Iron and Steel.

On the 16th inst. there were shipped from the Homestead Steel Works of Carnegie, Phipps & Co., Limited, at Homestead, Pa., two large steel plates for Government ships. They were 3 inches thick, 9 inches wide and 206 inches long. Each plate weighed 13,000 pounds. The plates were bent in a semicircle, and are to be used round the pilot-houses of large gunboats. The work of bending them was done while the plates were cold—the first attempt ever made at such work in the United States. It was so successfully accomplished that the firm are getting ready to fill six more orders of a similar nature. On Saturday, the 18th inst., there were turned out at this plant two plates 96 inches wide, 180 inches long and 3 inches thick Each plate weighed 9000 pounds. The plates were heated to a cherry-red and bent on rolls in the shape of a semicircle. They were tested to 60,000 pounds tensile strength and to an elongation of 20 per cent. in 8 inches.

The Henderson Steel and Mfg. Company, of Birmingham, Ala., have decided at a recent special meeting to increase the capital and build a 12-ton basic open-hearth furnace.

The labor disturbance at the works of the Syracuse Tube Company, Syracuse, N. Y., has been adjusted. They are now running all their mills full time in all departments.

No. 2 Furnace, of the Port Henry Furnace Company, Port Henry, N. Y., has again passed her best previous record, having made last week 498 tons of iron. This is nearly double the best average output of any previous blast, and is believed to be by far the best record of any furnace of its size in the Champlain or Hudson River Valley not using coke exclusively. Considering the fact that the ores used were all Champlain magnetites, which while rich in iron are difficult of reduction, and the fuel principally Delaware and Hudson anthracite coal, the record will perhaps compare not unfavorably with other notable furnace outputs.

Andrews Brothers & Co., of Hasetон, Ohio, are adding a new and improved hot-blast stove to their furnace, which will cost about $50,000.

There is a company in embryo to buy or lease the "old mill" and devote it to the manufacture of wire nails and sheet-iron; but nothing more substantial than talk has been done to date.—*Ironton (Ohio) Register.*

The rolling mill and nail factory of the Oxford Iron and Nail Company, at Oxford, N. J., has shut down for temporary repairs.

The American Tube and Iron Company, of Middletown, Pa., have closed a contract with the Pittsburgh Plate Glass Company, to supply immediately all the pipe necessary for their 8-inch gas line from the Ruff Run field to their Ford City Works, a distance of 12 miles. The pipe trade is in the best of conditions.

The Monongahela Furnace Company were permanently organized at McKeesport, Pa., last week. The details of the preliminary organization of the company were set forth in our issue of the 26th inst. The corporation is composed of the stockholders of the National Tube Works Company, and propose to erect two of the latest improved furnaces, each with a capacity of 250 tons daily, on the site of the White homestead at McKeesport, Pa. The pig-iron produced will be used by the National Tube Works Company and the Republic Iron Works, Limited. Committees will be appointed at once to secure bids for the building of the new plant, which the company hope to have completed by February 1, 1890. The officers elected are: President, E. C. Converse; treasurer, W. F. Eaton, of Boston; assistant treasurer, Horace Crosby, of Pittsburgh; vice-president, D. W. Hitchcock, of Boston. Directors: E. C. Converse, J. H. Flagler, C. I. O'Connor, Horace Crosby, H. J. Eaton and D. W. Hitchcock.

The appraisement of all the real estate of the Reading Iron Works amounts to $780,000. The estimated appraisement at the time of the failure was about $1,000,000 more than the above amount. The appraisement of the personal property amounts to $450,000, including some 11,000 tons of pig-iron. Deducting the mortgage and all expenses necessary for the adjustment of the affairs of the company, the sale of the iron, collecting of rent, &c., it is estimated that the balance left will be enough to pay about 38 per cent. of the claims of the creditors, which does not include the stock lien, and which may be wiped out entirely. Their figures show that the present value of the plant is considerably less than its cost and what it was estimated to be worth at the time of the assignment.

The furnace of the Bellefonte Furnace Company, at Bellefonte, Pa., has been blown out after a very successful run of 17 months. The stack will be relined, and therefore work will not be resumed for two months.

The Glendon Company, at Easton, Pa., are pushing forward repairs on stack No. 3. Their No. 2 stack, which has been in blast some time, is now out of service. This leaves but one furnace in blast.

The charcoal furnace at Joanna, Pa., has started up after an idleness of a year. The furnace has undergone extensive repairs, enlarging its capacity, and new engines and boilers have been put in.

Machinery.

At a meeting of the directors of the Westinghouse Electric Company, held in the office of the company, at Pittsburgh, on the 16th inst., the regular quarterly dividend of 1½ per cent. was declared.

The Southwark Foundry and Machine Company, of Philadelphia, are turning out this year some very heavy work. They recently finished four immense duplex blowing engines for the new works of the Pennsylvania Steel Company, near Baltimore. Each engine weighs 755,000 pounds, and under each are two bed-plates weighing 63,000 pounds apiece. These were cast in one piece. The fly-wheel, weighing 100,000 pounds, was also cast whole and split afterward. It is believed that these are the largest blowing engines in the country.

Hardware.

Waltham Emery Wheel Company, Waltham, Mass., report that they are running their factory night and day to fill orders. An enlargement of this plant is contemplated.

The mills of the Harrison Wire Company, at St. Louis, which have been idle for some years, were completely destroyed by fire recently, causing a loss of about $40,000, with no insurance.

Hubbard & Co., axe and shovel manufacturers, of Pittsburgh, whose works in that city were destroyed by fire some weeks ago, have decided not to rebuild in that city, but will build new works at Beaver Falls, Pa. They already have a plant there, and will simply extend it. The firm have recently been reorganized, David M. Long, W. N. Frew and Martha E. Frew having sold their interests to the

remaining partners. The firm will continue to be known as Hubbard & Co., and is now composed of the following-named persons: Charles W. and Sherman D. Hubbard, Charles Lockhart and Samuel A. Rankin

The Rockford Bit Company who removed from Rockford, Ill., to Kokomo, Ind., last July, advise us that the growth of their business has been remarkable in a little over a year, gaining in output from about 40,000 dozen to over 75,000 dozen annually. In order to meet the increasing demand they will make large additions to their factory, so as largely to increase their capacity, and it is expected that when finished their factory will be one of the most complete in the country. Besides the common auger bits they will make a specialty of their Perfection brand auger bits (Jennings' pattern). They allude also to the advantages possessed by them in their present location.

Miscellaneous.

Among the large leather belts recently manufactured by the Charles Munson Belting Company, of Pittsburgh, was one 120 feet long and 40 inches wide. It was made for the Oliver & Roberts Wire Company, Limited, of that city.

The Norton Fluid Metal Rolling Company, of Chicago, received a liconse to incorporate under the laws of Illinois on the 11th inst. They will have a capital of $1,000,000, and will manufacture metal sheets, plates, tubes, &c., directly from fluid metal. The incorporators are Edwin Norton, Oliver W. Norton and C. C. Warren.

The committee appointed to examine the condition of the Malleable Iron Company, at Meriden, Conn., recommended that the creditors accept 30 cents on the dollar.

Labor Troubles at Pittsburgh.

During last week the workmen in the employ of the National Tube Works Company, at McKeesport, Pa., to the number of 1500, and a majority of the workmen at the Solar Iron Works of William Clark's Son & Co., at Pittsburgh, went out on a strike. In the first case mentioned the strike lasted but one day, as the firm agreed to give the men the advance in wages which they requested It will be remembered that about one year ago the company made a reduction in wages of from 5 to 10 per cent., with the understanding that when an improvement in trade took place the reduction would be restored. It is claimed by the men that before the strike took place they made efforts through a committee to have the reduction restored and failed. The company claim that the men failed to give notice that they would strike. The latter say the demand of the committee was in itself a notice that they would come out if it was not complied with. The following statement was prepared by the general manager and handed to the committee appointed by the employees to wait on the firm:

That the management having considered your application for the restoration of the wages existing before the last 1888 reduction, now give notice that all departments will be so restored, to take effect on and after Monday, May 20.

While the business of the general pipe trade does not warrant an advance at the moment, yet we feel that if trade prices improve we have now anticipated what we expected doing at a later date.

The threading and shipping departments will resume operations to-night, Friday, May 17. The furnace and other departments will resume Monday morning, May 20, usual time.

NATIONAL TUBE WORKS COMPANY.
J. H. FLAGLER, General Manager.

The advance in wages granted will average about 7½ per cent. All departments of the plant are now in full operation.

At the Solar Iron Works all the workmen, with the exception of the puddlers, went out on a strike on the morning of the 16th inst., and at this writing have not returned to work. As is probably well known, this is a non-union mill, and has been operated as such since December, 1887. At that time there was an extensive strike at the mill on account of the refusal of the firm to discharge a man who held two positions, which is against the rules of the Amalgamated Association. It is known as the "two-job" system. A long strike took place, which resulted in the defeat of the Amalgamated Association. For some time past the men have been dissatisfied, as they claimed they were receiving considerably less wages than are paid in mills controlled by the Amalgamated Association. On Wednesday evening, the 15th inst., the men held a meeting, at which President Weihe, of the Amalgamated Association, was present, and decided to again join the Amalgamated Association. A copy of the Amalgamated scale was prepared and presented to Mr. Clark, of the firm, who refused to sign it, the men stopping work at once. The only part of the mill in operation is the puddling department, which is operated wholly by colored men, to the number of 89. It is stated that these men would have also gone out but for the fact that the rules of the Amalgamated Association prohibit a colored man from joining it. It is stated that the firm have sent to the South for colored workmen, and will endeavor to operate the mill with new men. From present indications the fight will be a prolonged one.

The strike at the works of the Allegheny Bessemer Steel Company, at Duquesne, Pa., mention of which has been made in these columns before, is almost at an end, the workmen being defeated. While the entire plant is not in operation as yet, new men are being received every day, and it is a question of only a short time until enough men will be at work to operate the works to their full capacity.

The Lake Superior iron mines are busy. A dispatch from Ishpeming, 19th inst., says: "Over 750,000 tons of ore have already been sent from the five shipping ports of the Lake Superior iron district. At the corresponding date last year scarcely 100,000 tons of the ore had been sent forward. Marquette promises to regain the standing it once had as a shipping port for ore this season. The Cleveland Iron Mining Company, who grew tired of the extortionate charges of the vesselmen for transporting ore to Cleveland, have built vessels which will carry the entire ore output of the company this season. The vessels are of the largest size that will pass through the locks of the Sault Ship Canal, and will carry from 2500 to 3000 tons of ore. The prediction made several weeks ago that fully 6,000,000 tons of ore would be shipped by the mines of the district this year will be verified, unless appearances are deceptive. All of the large mines are preparing for heavy shipments, and the ore is going forward more rapidly than ever before. A number of the mines that ranked among the small producers last year will this season come to the front as heavy shippers. The Gogebic range will not materially add to its output of last year, but the mines of the Vermilion, Menominee, and Marquette ranges will produce more ore than ever before."

The New York Legislature, now adjourned, made appropriations amounting to about $12,560,000, against $9,089,000 last year, an increase of more than one-third. The rate of taxation for State purposes is raised from 2.62 to 3.52 mills on the dollar. Mayor Grant's Rapid Transit bill was killed; also the bill to reduce telephone charges. The Fasset Prison bill was passed. Judge Greene's bill for bridging the North River was killed. The most important bill passed as concerning New York City was the $4,000,000 Municipal Building bill.

Another Atlantic Racer.

The new Hamburg liner, Augusta-Victoria, the first of the twin-screw steamers built in England for the Hamburg-American Packet Company, arrived at this port on Saturday evening, completing the best first trip ever made by an ocean steamer. The exact time taken in going from Southampton to Sandy Hook was 7 days 2 hours and 30 minutes, equal to 6 days 8 hours and 30 minutes from Fastnet. She has a length of 460 feet, a width of 56 feet and a depth of 38 feet. Her engines develop the force of 12,500 horse-power, and her displacement is 10,000 tons. She carries three masts, and has a sharp straight stem and well-rounded stern. The new vessel has its whole working machinery duplicated. There are two distinct sets of boilers, two engines, two shafts and two screws, both sets working independent of each other, and separated by one solid longitudinal bulkhead running through the whole length of the ship from stem to stern, from the keel to the upper deck, and dividing the vessel into two non-communicating halves, of which each is fully equipped to propel the ship. It is claimed that in case of accident to one side of the vessel the other portion could in no wise be affected, as the machinery of the opposite half would continue to work and propel the ship with perfect ease. Numerous water-tight compartments subdivide each side of the ship and do not communicate with each other. These dividing bulkheads are solid fixtures without any openings whatever, and are thus capable of confining to one compartment any accident that might happen, for in case of a leak the compartment might be filled with water without affecting the buoyancy of the ship, and in case of fire such compartment could be quickly flooded with the steam pumps. The steamer has two keels, one on each side, which have not only the effect of lessening the draft but also prevent to a great extent the rolling motion, thus tending to keep the screws always under water and increasing the speed.

The collapse of the Panama Canal scheme is complete, the last contractor having ceased on the 7th inst. The most impressive spectacle in surveying the grounds is the immense quantity of abandoned machinery in various stages of corrosion. Merchants are vacating their warehouses.

The City of Paris, of the Inman Line, arrived at Queenstown on Tuesday night, having made the fastest eastward passage on record. The journey lasted 5 days, 22 hours and 10 minutes. By this feat the Inman liner has outdone her own westward achievement. The last trip of the City of Paris from Queenstown to New York was made in 5 days, 23 hours and 8 minutes.

Berlin dispatches indicate that Germany has agreed to restore King Malietoa to the Samoan throne, but demands an indemnity for what are termed native aggressions against the Germans.

It is reported that a company with a capital stock of $3,000,000, made up of English capitalists and northern iron-masters, will build four blast furnaces at Cumberland Gap, Tenn., near the Virginia line.

The Iron Age

New York, Thursday, May 23, 1889.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, JR., - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

Profits of Iron and Steel Manufacturers.

Under existing circumstances it is very natural for business men to draw comparisons between their own unsatisfactory condition and that of those with whom they have trade relations. Although everybody concerned may be suffering from unremunerative prices for their products, as well as a restricted demand, the other man is always the one who is specially favored. Manufacturing consumers of iron and steel seem to be particularly inclined to entertain this view with regard to those from whom they draw their supplies of what to them is raw material. No matter how low prices of such iron and steel may be the consumers insist on having them reduced still lower, in the belief, which is more or less popular, that somehow or other the iron and steel manufacturer will be able to retain for himself a comfortable margin of profit. The competition for business between the manufacturers is by no means relied upon to depress prices to consumers, but the latter resort to all kinds of practices and devices to get their iron and steel cheaper. They ignore statements which may be made of the impossibility of further reducing prices so long as good raw materials and wages continue on the present basis, and take the chances of receiving a product cheapened by the use of inferior materials or poor workmanship, the necessity of which is thus imposed on the manufacturers. Yet the iron and steel business is regarded as such a desirable and lucrative occupation that outsiders are continually seeking to enter it.

Those who have had a long experience in the manufacture of iron and steel, and who should be able to express a correct opinion of its advantages and disadvantages, invariably assert that consumers have in the majority of cases acquired wealth more rapidly than themselves. The years in which a fair margin of profit is secured by a manufacturer are very few in comparison with the years in which prices are low and margins are narrow or else wiped out altogether. There are conspicuous instances of large fortunes made in this branch of trade, but they are the more conspicuous by reason of the numerous instances to be found in every iron-making section of works which have only earned their owners a fair competence, or have barely given them a living or have proved absolute failures, and ruined all connected with them. There is not an iron-making section of the country in which disastrous failures, often occurring despite the most careful management, have not served as reminders of epochs of low prices and unremunerative business. They should have served a useful purpose also as monitors to those who affect to believe that iron and steel prices can be indefinitely reduced without disaster to the producers.

A manufacturer of not less than 25 years' experience, who has been reasonably frugal and who has acquired but a modest competence to represent that long term of hard work and risk of capital, recently sought to make a sale of iron to a consumer who in less than half that time had swollen his capital of $25,000 to over $2,000,000. He was not told that his prices were higher than those made by competitors, but that all prices of iron were still too high and would have to be reduced; iron manufacturers in this country were making entirely too much money and must cut down their profits. If they refused to do so willingly they would be obliged to do so against their wills. The immense fortune which had been accumulated by the consumer in question was evidence in itself that so far as the price of his own products was concerned he had taken good care to see that it was high enough. The view of the iron trade taken by this man is not exceptional, or it would not be worth stating. On the contrary, there are many consumers who express themselves in the same way, and, further than that, they endeavor to depress prices by various means, in order to force values down to the level which they insist should obtain.

It would be invidious to point out the memorable failures in the iron and steel trades which have occurred to add emphasis to this presentation of the manufacturers' side. Examples will occur to the least informed. Those who have made large fortunes out of the iron and steel business in itself are comparatively few in number, taking into consideration the vast extent of the business and the large number of persons interested in it. Side issues, such as land speculations, coal mining, oil speculations, and above all ore mining, have caused accretions of wealth which have often been wrongly attributed to the large profit on the manufacture of iron and steel because the party involved was known to the world generally as an iron and steel manufacturer. We have in mind as an instance of this a good friend who frankly confesses that until he became actively interested in ore mines he was able to accumulate very little money, although he had previously for years conducted what outsiders presumed was a very lucrative iron and steel business. His customers were more benefited than he was, and this, we believe, would be the testimony of most manufacturers.

Arbitration at the Conference of American Nations.

With few exceptions, all the Governments of nations to the south of us have now officially accepted the invitation of our Government to attend the congress of all American nations to be held at Washington in October next. Among the items in Section II of the programme there are two likely to lead to practical results of far-reaching influence. They are:

1. Measures that shall tend to preserve the peace and promote the prosperity of the several American States.

7. An agreement upon and recommendation for adoption to their respective Governments of a definite plan of arbitration of all questions, disputes and differences that may now or hereafter exist between them, to the end that all difficulties and disputes between such nations may be peacefully settled and wars prevented.

Several wars in Central and South America that occurred during the present generation could easily have been avoided if arbitration had been resorted to. We may instance the war on the Pacific, which ruined Peru almost hopelessly and debarred Bolivia from access to the Pacific, and the war in Central America that followed the invasion of Salvador by General Barrios, then President of Guatemela. War seemed inevitable (at the time of the strife on the Pacific) between the Argentine Republic and Chili on account of the Patagonia frontier. President Hayes' arbitration prevented it, and only last year President Cleveland arbitrated between Nicaragua and Costa Rica in connection with the projected canal. In a few instances European monarchs have lately been arbiters, Spain in particular, the last decision of the latter settling the difficulty between Colombia and Italy. Most of the disputes in Spanish America being border troubles, and Spain possessing in her archives the old documents relating to frontier surveys between the former viceroyalties, she is the less objectionable among the European States, but still if European arbitration can be avoided and the nations of this hemisphere settle the differences quietly among themselves on the basis of a mutually accepted principle, it will be by far better. The sooner a standing committee of an international character can be appointed the better it will be for the settlement of pending disputes threatening war. The most urgent case for settlement seems to be the dispute between Paraguay and Bolivia. We extract from an editorial, which in April last appeared in the leading Rio daily paper, the *Jornal do Commercio*, the following passage: "It is asserted that the Brazilian Government can do nothing to prevent a conflict between Bolivia and Paragua, since our Government has suffered a check from the first nation which will seize the territory in dispute. It is also evident that a treaty of alliance exists between Brazil and Paragua, which, while strengthening the Republic, guarantees the interests of Brazil. There is no doubt that we are preparing for war, since everything indicates that it is imminent. Under the pretext of preventing an invasion of our territory, we send to our frontiers an army five times larger than is necessary."

In answer to insinuations of the kind, the Government of Dom Pedro kept silent. Early in March news was still peaceful; it was then asserted that this question of the Puerto Pacheco district on the upper Paraguay was receiving an amicable settlement. Paraguay was to reserve her sovereignity, while conceding to Bolivians the usufruct of the district. A hitch seems to have occurred since, and Brazil prepares for active military intervention, which may suit its home politics all the better, since the republican agitation would then find a diversion and be suffocated by the martial ardor.

The trouble between England and Venezuela about the British Guiana frontier was alluded to by President Pablo Rojas Paul in his message to the National Congress, assembled at Caracas, in March last, with the following words: "The English have from all appearances definitel y

taken possession of the vast territory which stretches from the Essequebo to the Pomaron on the southern bank of the Orinoco, building fortifications, erecting buildings for offices, and organizing colonial administration, the inference being that they regard as their property that portion of the neighbor's house." Prior to the more important gold discoveries in the district the ownership of Venezuela was recognized and permission was asked to build light-houses at the mouth of the river for the benefit of the seafaring nations; it was stated that the garrisoning of Point Barima, situate in a region explored by the English traveler, Schomburgk, did by no means imply that England laid claim to it. The importance of the gold mines, which appears to be permanent, has changed all this.

The partisan strife in Hayti since the exile and death of ex-President Salomon, last summer, does not appear to draw to a close. One month Légitime is the victor, and the next Hyppolite. It is asserted by foreigners arriving thence that both intentionally prolong the strife so as to be able to drain the country of what money there is left till both have enough. Under Salomon Hayti flourished, coffee (about the only product besides logwood) brought good prices latterly, so that it may take some time before the cash that can be extorted is exhausted. As we are the only nation which has not recognized Légitime, nor his blockade, we are doing a thriving trade down there. But the warfare is described as being most barbarous, and it is about time that some pressure be exercised to put a stop to the atrocities mutually perpetrated. The rest of America is in a normal condition, there being no revolution present or in sight. But the three cases we have alluded to amply prove how necessary it has become for the interests of all to firmly establish arbitration. As late as December 4 last Don Matias Romero, Minister of Mexico at Washington, in a letter to the Philadelphia Peace League, dwelt at some length on the good prospects which arbitration evidently has in America, showing how useful it has been between his country and the United States. This seems indeed to be the general sentiment.

The Copper Situation.

The American mines fixed the price of copper last week at 12 cents for Lake, which represents the price on the basis of which they are willing to pay rebates of 4½ cents on copper delivered during the past two months. It represents the price, too, which they hope to maintain, providing the negotiations with the bankers who hold the stock of syndicate copper are carried to a successful issue. It is reported that new propositions have been again submitted. It is certain that the foreign holders will be very eager to participate in the highest market of the world. It may be questioned whether they can realize say £47 for Lake in Europe, which would be equal to about 10¾ cents here. On the other hand, the American mines cannot hope to hold the price at 12 cents if the stock of the foreign bankers cannot be tied up in some way, or entirely taken out of the country, as has been proposed. If the negotiations fail the foreign bankers will certainly be eager to sell here so long as they can get any more in the American market than they can hope to secure abroad. Only artificial means can hold the market at 12 cents or anywhere near it, and whatever agreement is reached must include the holders of the stock held here on foreign account. It is not surprising that under these circumstances manufacturers and the trade will operate very carefully, and even if finally the completion of the pending negotiations should be announced, there are too many possibilities of leaks and evasions to inspire very much confidence.

The leading considerations which command caution have been repeatedly alluded to. In the first place, our mines are able to supply the market fully, at a small profit, at 10 cents a pound, and then must find an outlet for a surplus abroad. The price at which the latter can be placed must ultimately determine approximately the figure at which the domestic consumers are supplied. The surplus is too great, it comes from too many sources, too readily antagonistic, to allow of the old methods of marketing at a sacrifice for the sake of holding up this market artificially. The price in the United States cannot long be 25 per cent. higher than that for the same grades of metal in Europe. But even if producers all over the world can get together to agree upon a reduction of output, the bankers must be dealt with. It has certainly not proved an easy matter thus far, after months of negotiations in the face of serious dangers.

A good many persons in the copper trade seem inclined to the opinion that its best interests require the maintenance of a price like that just made. But the evil is done. The penalties of the unnatural condition of affairs last year must be borne. It may well be questioned whether all interests are not best served by a complete break with the past, allowing consumption to develop as it should under the stimulus of prices which have become natural.

Reduced Rates on Iron.—The Pittsburgh and Lake Erie, Pennsylvania, and Pittsburgh Western railroads have reduced the freight rates on pig-iron, blooms, scrap, muck-bar, &c., to and from the Mahoning and Shenango Valley blast furnaces 15 cents per ton. The former rate was 80 cents. It is now 65 cents. This reduction is in effect between Cleveland and the valleys as well as between Pittsburgh and those points. The depressed condition of the iron trade caused the railroad companies to make the reduction. The rates on the Baltimore and Ohio and Pittsburgh, McKeesport and Youghiogheny between the Connellsville district blast-furnaces and Pittsburgh have been correspondingly reduced. A similar cut has been made on the first-named road between Pittsburgh and Cleveland.

The Treasury Department has designated Barren Island, in the New York collection district, as a place where vessels laden with coal, salt, railroad iron, or other like articles in bulk, may after entry at the Custom-House discharge their cargoes under the superintendence of customs officers at the expense of the persons interested.

The Madrid Government is at work on the Cuban tariff, and it is promised that some of the enormous duties will be moderated.

PERSONAL.

George H. Hull, president of the American Pig Iron Storage Warrant Company, is in the South.

Abram S. Hewitt, of Cooper, Hewitt & Co., New York and Trenton, spoke at the meeting of the Iron and Steel Institute to re-enforce the invitation of the American Institute of Mining Engineers and other American societies to hold a meeting in the United States in the fall of 1889.

John Jarrett, the well-known labor leader, for some years president of the Amalgamated Association, has been appointed consul to Birmingham, England. The position is an important one, and one to which it is believed Mr. Jarrett is well fitted from his intimate knowledge of the iron and steel business, which will be of considerable advantage to him in fixing valuations and superintending invoices, part of the duties of the consul. At present Mr. Jarrett is secretary of the American Tinned Plate Association, with headquarters in the Lewis Block, at Pittsburgh. Upon his departure for England his duties will be assumed by James M. Swank, the well-known general manager of the American Iron and Steel Association, of Philadelphia.

E. H. Utley, for a number of years general freight agent of the Allegheny Valley Railroad, at Pittsburgh, has resigned to enter the employ of Carnegie, Phipps & Co., Limited, of that city. He will take charge of the freight business of that firm, and also of Carnegie Bros. & Co., Limited.

F. E. Bachman has resigned his position as manager of the Tennessee Coal, Iron and Railroad Company's furnaces at Ensley, Ala., on account of his health. His address is now Strasburg, Lancaster County, Pa.

M. D. Flynn, a prominent iron-worker of Youngstown, Ohio, is mentioned as the probable successor of William Martin, the present secretary of the Amalgamated Association, at Pittsburgh, who will shortly resign his position to accept an appointment under the Government.

John Birkinbine, of Philadelphia, has gone to Duluth, Minn., where he is superintending the construction of a new furnace. He will be absent for about two weeks.

Adolf Sutro, of tunnel fame, proposes to erect a large library building in San Francisco.

Henry A. Bentley, of Newport, a civil engineer of note, went on board a boat of the Fall River Line and his body was picked up in the Sound five days later.

W. E. Dodge, of New York, has sailed for Europe.

Among those who passed over the Central New England and Western Railroad, a connection of the Poughkeepsie Bridge, were the following, who are well known as being identified with large iron interests in Eastern Pennsylvania: Arthur Brock, John W. Brock, Henry McCormick and Charlemagne Tower, Jr., of Philadelphia.

The American Institute of Electrical Engineers have just elected the following officers: President, Prof. Elihu Thompson; vice-presidents, Francis R. Upton, T. Commerford Martin, Edward Weston, Prof. Edward L. Nichols, Dr. Louis Duncan; secretary, Ralph W. Pope; treasurer, George M. Phelps; managers, Dr. Schuyler S. Wheeler, George B. Prescott, Jr., Joseph Wetzler, Thomas D. Lockwood, Francis B. Crocker, William Mayer, Jr., John W. Howell, Charles Cuttriss, Dr. F. Benedict Herzog, Henry Van Hoevenbergh, H. C. Townsend, Prof. W. E. Geger.

THE MECHANICAL ENGINEERS.

THE ERIE MEETING.—II.

On Wednesday afternoon a visit was made to the Erie City Iron Works, manufacturers of steam-engines, boilers and circular saw-mills. The works, which already cover a large area, are being considerably extended. The visitors were much interested in a new form of engine which is to be placed on the market. In plan it is T-shape, the cross-bar representing the cylinder and the stem the shaft. The shaft is placed at right angles to the cylinder, from the center of one side of which it projects, that side of the cylinder next to the shaft being cut away sufficiently to permit the revolution of the crank. Projecting at right angles from the center of the piston, to which it is rigidly attached, is an arm engaging by universal joint with the crank on the end of the shaft. The piston acts as a valve, opening and closing the inlet and exhaust ports, which are placed near the center of the cylinder, core passages leading to each end. As the cylinder moves forward from one end to the other it travels on a spiral, the latter half of which is, of course, the reverse of the first half. The engine shown ran at high speed, and was free from all undue jar. We hope shortly to present engravings showing in detail the construction and operation of this new form of engine.

After passing through the machine-shop, foundry and boiler works, the members were led to the establishment of the Stearns Mfg. Company, a large and well-appointed collection of buildings devoted to the manufacture of engines, boilers, edgers and sawmill machinery. The main machine-shop is 300 feet in length by 80 feet in width, being two stories at the sides, the center portion being occupied by a traveling crane moving the whole length of the shop. Here was shown a partly-assembled Wilkin's gang saw, in which the heavy reciprocating parts were so nicely balanced as to do away with the hurtful pound so common and destructive in these machines at each change of stroke. After making a tour of the works the members were led to the drafting-room, where they were shown the beauties of red fluid adapted for printing in blue, after which they were photographed in a group.

From the Stearns works the visitors passed to the Jarecki Mfg. Company, makers of gas, steam and water fittings of all kinds. Here a most interesting collection of automatic machinery designed especially for the work to be done was found. One machine was found tapping T's up to 10 inches, the six threads of two T's being tapped at the same time. The wheel carrying the T's is hexagonal in section, the T's being held in chucks, one to each face. Two sets of taps of three each were so arranged as to feed toward the T's, tapping the ends of the arms and the stems at the same time. After the thread had been cut the machine reversed and withdrew the taps at a quicker speed than they were at first fed. After tapping the two T's, the wheel was revolved one-third of a revolution to bring two other chucks in position before the taps. A small pump forced oil on the taps as they were fed forward. Machines constructed on the same principle are also adapted for threading angles and straight connections, either right or left. In the cock-boring machine 12 cocks are bored simultaneously. The cocks are held in 12 chucks, arranged on a circular center mounted rigidly on a shaft extending through the center of the machine. These chucks are carried by short revolving shafts placed at such an angle with respect to the axis of the machine that the tools will cut the required taper. The inner end of each chuck-shaft is provided with a pinion engaging with a stationary gear, the arrangement being similar to an epicycloidal wheel. It is apparent that as the shaft revolves it carries with it the 12 chucks and the cocks held by them, this revolution, by means of the pinions and gear, revolving the chucks. The cutting tools are carried upon a second wheel, splined to the shaft, and so fixed that each tool comes opposite the cock it is intended to bore. The tool-carrying wheel is fed forward by suitable arrangements in the rear of the machine. There was also shown a small and very accurate machine for turning the balls for valves. In the machine-shop near one of the lathes reserved for heavy work was a pneumatic hoist, consisting of an air cylinder and a piston, to the piston-rod of which the hook was attached. This traveled on a track leading from the door over the lathe. The work to be done in the lathe was lifted by means of compressed air admitted under the piston. The device was found to work most admirably.

"Standards" was the title of a paper presented by James W. See, which was held over for the evening session. The following is an abstract of it: "The watch-maker of old was really a watch-maker because he made a watch. He made the works and every part of the works. He made the case and every part of the case. He made the watch as a thing by itself, without regard to any other watch which he might have made in the past, or might be making at present, or might make in the future, and above all, without regard to any watch which any one else might make. His work was well done, or at least we of to-day must say so. . . . When the old watch-maker made his next watch, it also stood upon its own bottom. It was as good as the first one and probably a trifle better, or perhaps worse. It was bound to be different, for the simple reason that in those times no thought had been given to processes for duplicating good things." To-day, looking at the old watch-maker, we would criticise his screws because they would not interchange with each other, and this difficulty would be met by the fact that each screw was marked to correspond with its hole. In those days the screws and other important details of the watch were designed especially to differ from each other, the idea being that repair to be done should be done by the maker. This business theory has long since been exploded, and the watch-maker of to-day understands that if his watch can be readily repaired he will have an advantage in sales. He will not use a screw which cannot be readily produced by another watch-maker called on to repair his watch. It follows that many watch manufacturers will be making the same kind of screws, and then a screw manufacturer appears who can make all the screws cheaper than either can make the part he needs. "The effect of the modern system of product details has been to demand that there should be a uniformity of details—that is, an interchangeability among the individuals of the same class. To secure a reliable uniformity of excellence in the general character of the purchased details of mechanical structures constitutes one of the continued strains upon the manufacturer, and it may be said as a general fact that standards of uniformity have been most thoroughly established in those branches of trades in which the fewest numbers of parties are interested."

The writer then pointed out a few examples in which the desirability of establishing standards is apparent. We give the list in part, without the comments: Steam and gas pipe; cast-iron water and gas pipe; brass tubing; boiler tubes; lead pipes; hose and hose couplings; circular saws and their arbors; bolt threads; machine screws; bolt heads and nuts; gauge of railroads (there is no standard of record; although the necessities of transportation have brought about an accepted standard expressed as 4 feet 8½ inches, there is no record of it); street-car gauge; gauge of common vehicles; shanks of oil cups, cocks, &c.; nails, braces and bits; drill shanks; tool sockets, tool eyes and their handles generally; machine-tool posts; bolting-slots for machine tools; noses of lathe spindles; sections of rolled iron; hinges; locks; oil-well tools; stove-pipe; pinion wire; washers; brick; tin-plate; wire cloth; rivets; rope and wire rope; files; wire; brass; babbitt metal; pig-iron, steel and the metals generally; steam-engines; tests of machinery.

In the proposed method for the record of standards there shall be a governmental bureau of standards, in which any respectable representation of a trade or craft, after adopting a standard, may file the same. The use of such standards is not to be made compulsory. It is proposed that after a standard has been established a description of it can be procured on payment of reasonable fees. A governmental publication of an established standard is proposed. The bureau of standards could be satisfied by a single additional division and examiner in the Patent Office. An enactment would be required creating the bureau, providing for the filing of a standard after its adoption by a business, trade, representative body, &c., the numbering of the standard and the use of a symbol indicating that the article conforms to the United States standard No. —. The paper closed with suggestions regarding the best method of promoting the proposed system of standards.

The discussion on this paper brought up the fact that the list presented by Mr. See failed in many respects to cover the ground as regards manufactured articles for which there are now no standard sizes recognized by manufacturers in general. This includes taps, reamers, bolts, nuts, set-screws, washers, cut gearing, dowel pins, wing nuts, &c. Oberlin Smith, in a written communication, advised that no society or body should be allowed to file standards indiscriminately. He advocated the appointment of a United States commission of representative men to examine and report upon the adaptability of any proposed standard. He advised the doing away with all present gauges, and the adopting of a new one with numbers in parts of a thousand. A committee, consisting of J. W See, Coleman Sellers and Oberlin Smith, was appointed to obtain further information.

In the paper by Professor Webb on "An Error in the Encyclopædia Britannica," it was shown that, in the article on hydromechanics, the horizontal force or reaction, acting on the side of the vessel opposite the orifice through which the water flowed, was constant and independent of any movement of the vessel. This deduction is contrary to that presented in the article, which gives two formulæ for the reaction—one when the vessel is at rest and the other when it is moving in a direction opposite to that of the jet. The paper brought a written reply from Professor Unwin, the writer of the article, in which the inaccuracy is practically acknowledged. From "Note on the Steam Turbine," by Profersor Webb, we take the following: "When steam flows out from under a considerable pressure it attains a very high velocity. In the production of this velocity the steam expands from the high to the low pressure, and the mechanical energy thus produced, and existing in the form of kinetic energy in the moving steam, would seem to be obtained with a high degree of economy. The problem, therefore, is to some extent the same as in a water turbine, having given a stream of fluid at a certain velocity, to abstract as much as possible of the energy from it by allowing

it to react upon a moving wheel. Now, the primary condition of economy is that the fluid shall leave the wheel with only enough velocity left in it to get it out of the way; and in the case of the steam turbine this requires an almost, if not quite, impracticable velocity for anything like a great difference of pressure." Professor Webb described a unique form of steam motor which was really composed of a large number of turbine-wheels, which increased in size from the live-steam entrance to the exhaust. The wheels were mounted on a common shaft and were separated from each other by spaces about the thickness of the wheels. The steam as it passes from one space to another impinges on the blades of the wheels, which are driven with great velocity. This steam turbine is used on the steamship City of Berlin to drive a dynamo, its shaft being united to the armature shaft. As the steam at its entrance into the turbine has a pressure of 150 pounds and at the exhaust a pressure of only 15 pounds, the efficiency and economy of the wheel are made evident.

Mr. Swasey stated that he had examined and in fact made the driving-gear for a similar steam turbine which used steam expansively, and which, by actual count, had attained a speed of 25,000 revolutions a minute.

"Notes on the Comparative Loss by Friction in a Transmitting Dynamometer Under Different Loads and Speeds," by Samuel Webber, showed that the friction remained constant under a very considerable increase of load and varied slightly with the velocity. The table accompanying the paper shows not only the constancy of the friction in the dynamometer, but also the consequent decrease of the coefficient of friction.

The paper by Profs. J. E. Denton and D. S. Jacobus on "Steam Consumption of Engines at Various Feeds" was the record of experiments made with a 17 x 30 steam engine driving one of the air compressors used in the construction of the new Croton aqueduct. It was found that there was a distinct gain in economy of steam as the speed increased for one-half, one-eighth, and one-fourth cut-off at 90 pounds pressure; that the loss in economy for about one-fourth cut-off was at the rate of $\frac{1}{12}$ pound of water per horse-power for each decrease of revolution per minute from 86 to 26 revolutions, and at the rate of $\frac{5}{8}$ pound of water below 26 revolutions. Also at all speeds the one-fourth cut-off is more economical than either the one-half or one-eighth cut-off. One-half cut-off should be less economical than one-fourth cut-off for 90 pounds boiler pressure, without any consideration of cylinder condensation. One-eighth cut-off, however, should, by the theory of expansion, be more economical than one-fourth cut-off, so that the fact that such is not the case is ascribable only to cylinder condensation. A boiler pressure of 90 pounds was shown to be superior in economy to 60 and 30 pounds at ordinary speeds and cut-offs, the superior economy of the higher pressures not being due to differences of cylinder condensation. The actual minimum water consumption of the engine was found to be at one-fourth cut-off. For 90 pounds boiler pressure the consumption was 27.5 pounds at 60 revolutions and 26.5 at 90 revolutions. "Evidently steam throttled from 90 pounds to an extent which would afford 23.45 pounds mean effective pressure would give somewhere about 5 per cent. as the steam unaccounted for or condensed by cylinder condensation, and the difference between this value and 15 per cent. for Test 45 is fairly attributable to the superheating due to the throttling, and there is a consequent saving in steam consumption per horse-power between the average for 34 and 35 and for 45, equal to 56.87 − 47.8 = 9 pounds, or about 16 per cent. This represents the advantage of obtaining a given horse-power at a fixed cut-off by carrying a high boiler pressure and throttling to a low initial pressure, rather than using a boiler pressure very little above the desired initial cylinder pressure. But if we seek the water consumption for a case where practically the same mean effective pressure is obtained with ordinary ranges of expansion, we find that any such saving due to superheating by throttling as is indicated above is quite incapable of competing with the saving involved in the use of the principle of expansion. Thus we have in Test 38 for 60 pounds boiler pressure and about three-tenths cut-off a mean effective pressure of 27.4 pounds and a water consumption of only 31.6 pounds, or a saving of one-third of the throttling consumption just quoted. Again, in Test 30 for 90 pounds boiler pressure and about one-eighth cut-off we have 22.7 pounds mean effective pressure, and a water consumption of 29.5 pounds per horse-power, or nearly a saving of 40 per cent. of the throttling consumption." Regarding cylinder condensation the writers stated that it was impossible to analyze, in time for the present meeting, the data regarding liquefaction of steam by cylinder condensation, with a view to determine any even approximate law underlying the quantities of steam liquefied under the various conditions covered in the investigation.

In the discussion of this paper Professor Wood stated that in an engine in which the steam was throttled from 90 to 45 or 50 pounds pressure there was a great saving when the boiler pressure was reduced to 50 pounds, and the engine was run with the throttle wide open.

The paper by Professor Denton on the "Performance of a 35-ton Refrigerating Machine of the Ammonia Absorption Type" was founded on tests made of a machine in operation at an establishment where it is used to maintain about 400,000 cubic feet of space at an average temperature of 34° F. It was found "that the total refrigerating effect of the machine during 24 hours was equivalent to the cooling of the circulating brine an amount equal to the heat which would melt 40.67 tons of ice to water at 32° F., or freeze 40.67 tons of water at 32° F. into ice. This work is what is to be understood as '40.67 tons of ice-melting capacity,'" and also "that if each pound of fuel consumed at the boilers evaporated 10 pounds of water into steam at 45 pounds pressure above the atmosphere, then each pound of fuel consumed in operating the refrigerating machine produced an amount of refrigerating effect equivalent to the heat which would melt 17.1 pounds of ice to water at 32° F., or freeze 17.1 pounds of water at 32° F. into ice." The paper fully describes and illustrates the machine, and shows how the test was conducted.

Thursday morning Prof. De Volson Wood presented four papers, headed "The Expansion of Timber Due to Absorption of Water," "Some Properties of Ammonia," "Formulas for Saturated and Superheated Vapors," and "Some Properties of Vapor and Vapor Engines." He found by experiments that the elongation in the direction of the grain and the lateral expansion were as follows:

	Pine.	Oak.	Chestnut.
Elongation, per cent	0.065	0.085	0.165
Lateral expans'n, per cent.	2.6	3.5	3.65

The tests were made with specimens 36 inches long, $\frac{1}{4}$ inch thick, and 5 inches wide. The specimens were thoroughly dried and then soaked in water, the two measurements taken giving the elongation and expansion. The paper on ammonia contained important data concerning its properties, and is of value now, as ammonia is used so extensively, especially for refrigerating purposes. The paper was prepared as a preliminary step to further investigation. The other two papers gave valuable formulas on saturated and superheated steam. In the discussion Professor Denton presented a table in which the efficiency of the vapors steam, ammonia, ether, sulphide of carbon and air, expanded from 100 pounds to 14.7 pounds, was shown.

We will in an early issue present an illustrated abstract of the paper by A. F. Nagle on the "Cornish or Double-Beat Pump-Valves," and also of the one by A. W. Jacobi, on "Improved Motion Device for Engine Indicators."

A paper on the "Distribution of Steam in the Strong Locomotive," read by F. W. Dean, was supplementary to one read a year ago. The average consumption of steam was shown by diagrams to be as follows:

	Pounds.
Engine No. 383	22.34
Engine No. 444	25.67
Engine No. 357	26.73

After cast-iron valves had been substituted for the steel valves, which were wearing badly and leaking, the average result was for engine 444, 21.95 pounds. The initial pressure in the cylinder of the Strong engine is only some 3 pounds below the boiler pressure.

In the discussion that followed, W. W. Sprague, general foreman of the C. R. I. and P. Railway shops, stated that those engineers who ran with the throttle wide open and regulated with the lever used less coal than those who throttled the steam. In answer to a question if this was not hard on the valve and gear, Mr. Sprague said that the valves were of the balanced type and no undue wear was found to take place.

J. M. Whitham read a paper on "Cylinder Ratios of Triple-Expansion Engines," in which he presented a method of finding these ratios, giving the necessary formula and diagrams, and in which he presented a most valuable table giving the cylinder dimensions and ratios, piston stroke, the boiler-pressure and the piston speed, and the indicator horse-power of many of the best-known triple-expansion engines which have been built during recent years.

Thursday afternoon the members visited the Ball Engine Company's Works, and examined the machinery and methods there in vogue. All the engines made by this company are, before being sent out, tested under steam, and indicator diagrams taken. We expect soon to publish engravings showing the construction of the Ball compound engine, which has only recently been placed on the market. The party were then initiated into the mysteries of paper-making at the extensive Watson mills, after which they inspected the steam-engine and boiler works of T. M. Nagle and Cleveland & Hardwicke.

Thursday evening the members attended a reception at the Reed House, "tendered by the resident members and their friends to the visiting members and their ladies."

At the final session of Friday morning, Scott A. Smith considered the question of "Belt Traction on Pulley Faces." The most intimate contact of a belt with a pulley comes, first, in the smoothness of the pulley face; second, in the smoothness of the belt; third, in having the crown of the driving and receiving pulley exactly alike; fourth, in having the crown of pulleys not over $\frac{1}{8}$ inch for a 24-inch face; fifth, in having the crown two planes meeting at the center, and finally to so cut the meeting ends of a belt as to bring a nearly uniform stress on the lacing. The closing paragraph is as follows: "As friction is due, largely, to the unevenness of two surfaces in contact under motion, and as the best tractive quality of belts comes from the evenness and smoothness of the two surfaces of belt and pulley face, it easily follows, from what I have said, that the

value of the tractive force of a belt on a pulley face is due, first, to atmospherie pressure; second, to the tractive adhesion of the leather fibers and the oxidized oil of the currying process."

The statement regarding the important part played by the atmosphere brought out a warm discussion. J. H. Cooper said it was necessary to distinguish between friction and adhesion, one being independent of surface and the other dependent largely upon surface. In general, pulleys should be of larger diameter, there should be less width of belt, and the leather should be more pliable to insure better contact. Perforated pulleys in which the entrained air can escape give better results than those with plain surface. Atmospheric pressure has nothing to do with the grip of the belt on the pulley. F. H. Ball said that if the holes in a pulley face performed any function it would be better to perforate the belt, as the centrifugal force would create a current aiding the displacement. The discussion showed that the air theory had two parties of exactly contrary opinions, and, further, that very little concerning the true relation between the belt and the pulley was known.

The paper by J. H. Cooper—"On the Longitudinal Riveted Joints of Steam-Boiler Shells"—gave several new and valuable formulæ for the guidance of boiler-makers in proportioning the longitudinal joints.

In the discussion that ensued C. H. Parker said that the quality of boiler-plates had not yet become so uniform that a test section could be regarded as indicating the strength of the entire sheet. Sheets produced by the same maker also vary in strength. In hot fire seams are raised in temperature, and the tensile strength thereby reduced. Scale deposits add to this. Rivets are more reliable than the plates, as is shown by the rupture of the latter. Cold tests of boilers are not reliable, as the conditions are not those of practice. F. A. Scheffler said that manufacturers could not tell how a boiler would be handled after it left the shop, and that their only resource was to be on the safe side. He had found that the longitudinal seams were three-fourths as strong as the plate, and that the actual strength of the plate exceeded that stamped on it by the maker. If stamped 60,000, it would run from 60,000 to 68,000. Professor Hutton stated that the method of testing affected the results obtained, and he gave as an illustration a case he had had in which copper having a tensile strength of 33,000 pounds was specified. With the slow screw machine it was impossible to obtain this result, but when a hydraulic machine was substituted the desired tensile strength was reached, although the elongation was reduced. President Towne remarked that a standard form of riveted joint was needed, and also a standard method of making tests, and that the elastic limit, rather than the breaking strength, should be adopted as the only factor indicating the exact quality of the metal. E. F. C. Davis said: "We have full-sized testing machines in every boiler that explodes, and the proper study of them would throw much light on the subject."

"Bits of Engine-Room Experience," by L. F. Lyne, showed the harm done a cylinder in which shoulders had been formed at each end by the wear of the piston. The paper illustrated the uneven wear of valve stems, and closed with a description of how a bed of sulphur was removed from under an engine, and a bed of expansion metal (9 lead, 2 antimony and 1 bismuth) was substituted.

Oberlin Smith, in a written discussion of this paper, said that too much attention could not be paid to the reciprocating parts of a machine, and whenever possible the moving part should wipe over the ends in order to prevent the formation of end-shoulders by the wear taking place in the center.

The paper of Mr. Lyne on the "Use of Crude Petroleum in Steam Boilers" was supplementary to the one read at the Philadelphia meeting in 1887. It compared crude petroleum with kerosene oil when used for the prevention of scale in steam boilers. In one of the two new boilers, which had the same amount of work to do and which worked under the same conditions, 1 gallon of kerosene oil was used each week, while a like quantity of crude petroleum was used in the other. At the end of a month No. 1 boiler had no dirt or scale in it, while in No. 2, using crude petroleum, there was considerable loose scale. Four months afteward about 1 bushel of hard, broken scales was removed from the back headers and tubes of No. 2. The other boiler was still clean, and only required to be rinsed with water. No. 2 boiler was then thoroughly cleaned, after which each boiler was given 1 gallon of kerosene oil a day, and at the end of six months both were found to be perfectly clean. The paper also gives important directions governing the use of oil.

One of the most interesting features of the meetings of this society is the so-called "Topical Discussions." These are questions upon live topics, in which the mechanical engineer is vitally interested, and they are so selected as to be—taken as a whole—of importance to each member. The discussions are valuable, since the remarks are almost always based upon practical experience. One question was:

"Does it prevent nuts from working loose or prevent breakage of bolts to reduce their cross-section between the head and the nut?" Professor Sweet said, in a written communication, that a bolt would wear longer and would not work loose if the diameter of the plain part were reduced to the diameter of the bottom of the thread. The same thing could be accomplished by boring a hole down through the head to the thread. A bolt treated in this way had practically no weakest part, and was therefore better adapted to withstand strain, which was distributed over its entire length and not concentrated at one point. Professor Wood instanced the case of a steam-hammer head in which the tapered end of the piston-rod was driven in a tapered hole in the head. The rod frequently broke, and as it always broke a little below the upper surface of the head, the removal of the end from the hole was a difficult task. Mainly to obviate this trouble a groove was turned in the rod a short distance above the head, thereby reducing the section at that point, so that when it broke, as it was expected to, it would be an easy matter to remove the end. But this attempt to produce a convenient weak point for the rod to break at resulted in greatly increasing its life. G. E. Whitehead produced the same result in a milling machine arbor by reducing the shank by grooving to the diameter of the arbor.

"Have you tried the plan of applying electro-motors to mechanical operations requiring not more than 10 horse-power? Can you compare their convenience and economy with those of small engines, or the usual transmissions by belting and shafting?"

James Christie described a traveling gang-drill used at the Pencoyd Iron Works. This drill is located in the bridge shops, across which it travels. Owing to the overhead system of tracks it was impossible to use any method of transmitting power except by means of copper strips, forming an electric circuit. At the tracks the strips are broken and bridged The current is taken off by brushes. The drill consists of eight independent radial drills, mounted four on each side of the crosshead. The whole machine is moved forward and back along its track, the crosshead is raised and lowered, and the drills are all operated by a Thomson-Houston electric motor placed on top of the frame. All the movements are controlled by levers, placed within easy reach of the operator. The motor has never caused any trouble. C. J. H. Woodbury, described a method of hanging an electric motor to the shaft to be driven by means of a yoke-pinion and a gear on the shaft. As the load is applied the motor rises, the yoke and the motor at its lower or free end standing at an angle governed by the power required. When transmitting no power the yoke is in a vertical position; when transmitting the maximum amount of power the yoke approaches most nearly a horizontal position. President Towne stated that he had investigated the case of a crane in which the three motors needed would have cost, in the aggregate, more than the crane, making their use prohibitory.

During the afternoon the members enjoyed a sail on the beautiful bay upon which the city of Erie is located, and those who could remain witnessed a drill at the life-saving station.

The success of the Erie meeting was due largely to the well-directed efforts and the unusual harmony which characterized the work of the local committee, Messrs. Ball, Barnhurst, Hallock, Hardwicke, Miller, Selden, Scheffler, Skinner, Watson and Wilkin. A less conspicuous, though more important, part was played by the ladies of Erie, who succeeded most admirably in their endeavors to entertain both the Upper and Lower Houses composing the convention.

Reduction of Wages at Homestead.

About one year ago Carnegie Brothers & Company, Limited, of Pittsburgh, put in operation at the Edgar Thomson Steel Works, at Braddock, Pa., a sliding scale of wages, based on the selling price of steel rails, the principal product of the mill. When rails are selling at $27 per ton the men are paid on that basis as long as that price is in force, while, if an advance or a decline takes place, wages are affected accordingly. It will be remembered that this sliding scale was not put in operation until after a long and bitter strike had taken place, during which the firm were compelled to secure Pinkerton detectives to guard their property. When the scale was first presented to the workmen they opposed it, claiming that it meant a large reduction in their wages. However, the scale has now been in force for about a year and is working to the entire satisfaction of both firm and workmen.

As soon as it was seen that this plant could be successfully operated in this way, Carnegie, Phipps & Co., Limited, made preparations to introduce a scale similar in its workings at the Homestead Steel Works. The firm have been engaged for months in perfecting the details, in order that it would be fair to both employers and employees. This has been accomplished, and on Saturday, the 18th inst., the following notice was posted in various places at the Homestead Steel Works:

Notwithstanding our leading competitors have reduced wages, which were already much below those paid here, we are met with numerous demands for advances, ranging in some instances from 25 per cent. to 68 per cent. Prices never were so low for our product. Nothing in the condition of business justifies a demand for advances in wages. We have, therefore, no choice but to meet the issue thus unfairly forced upon us, and once for all place the relations of capital and labor at these works upon a basis which may enable us to compete with others, and give steady employment to our men.

On and after July 1 next, the labor in these works will be thus paid. Steel blooms have been selected as the fairest obtainable basis

for the scale. Current quotations, as published in the Pittsburgh papers, will be taken as the standard.

The schedules of wages, which can be examined at the office, are based on present price of steel blooms, billets and slabs of sectional area, not less than 16 square inches, of $27.50 a gross ton, on board cars Pittsburgh. Wages will be advanced or reduced as the average monthly selling price changes, but $25 per ton will be considered the minimum, below which wages will not fall.

In establishing these wages it has been the aim to make the earnings of our men at least equal to those in the works of our principal competitors in Pittsburgh and elsewhere. In many instances they are higher than paid by others.

The superintendent will receive applications for employment from men at present in our service, and will select from among those whom he thinks best qualified in the order of their application.

Should any positions remain unfilled after June 1 next the superintendent will appoint other men to these vacancies. No man will be employed who cannot bring satisfactory certificates as to his skill, sobriety and general good character.

The firm desire no man to remain in their service who does not feel that he is obtaining as much or more for his labor than he could get elsewhere, and who does not prize steady employment free from strikes and labor quarrels.

In the interest of many well-disposed, fair men who may avoid future loss and disappointment by being told now that whatever may occur from the action into which labor at competing mills and the unwise demands for advances here have reluctantly forced us, the final result is sure. These works cannot run and pay higher prices than their competitors pay, nor will the firm any longer attempt to do so.

Men desirous of obtaining employment will be required to sign an agreement to work under this scale, which will stand until January 1, 1892, either party having the right to withdraw from it at that date, or at the end of any succeeding year, by giving notice of their desire to do so, not later than July 1 of any year after next year has expired.

By order of the Board of Managers,
CARNEGIE, PHIPPS & CO., Limited.
WM. L. ABBOTT, Chairman.

The workmen held a meeting on Sunday, the 19th inst. The sentiment of those in attendance seemed to be that the reduction was uncalled for, and would be rejected, even if it became necessary to stop work. After being in session for about three hours, during which a number of speeches were made, the following resolutions were presented and unanimously adopted:

Resolved, That the workmen of the Homestead Steel Works recognize that the adoption of the sliding scale, as proposed by Carnegie, Phipps & Co., will be giving up everything that is dear to the heart of every true workingman; further be it

Resolved, That such a proposition, as presented by the company, is absolutely absurd, there being no foundation in fact for said notice.

Resolved, That the firm of Carnegie, Phipps & Co. have misrepresented the facts in said notices, and given broadcast to the public the statement that they had to pay more at their works in Homestead than their competitors have done for their work elsewhere, when the reverse is the case. One hundred tons of steel cost them no more than at any other union mill.

Resolved, That the firm of Carnegie, Phipps & Co. be condemned for their intention of declaring the various positions of the employees vacant one month previous to the expiration of the present agreement.

Resolved, That the whole matter be referred to the proper officials for adjustment.

From present indications a strike is inevitable unless the workmen agree to accept the scale, as it is the intention of the firm to insist upon its adoption, come what may.

The Monitor Puritan.—The double-turreted monitor Puritan, the largest of her class in the United States Navy, which was lately removed from League Island to Norfolk to receive additional machinery, will be completed at the Brooklyn Navy Yard, where the facilities at command will obviate any further delay. The vessel is built of iron throughout, armored with a steel-armor belt extending the entire length of the vessel, and carries four 10-inch breech-loading rifles. She has a powerful ram, very strongly secured, and is fitted with a steam steering gear and steam windlass. On top of the armor belt is worked an armor deck 2 inches in thickness. The principal dimensions are as follows: Length between the perpendiculars, 280 feet; length on load line, 291 feet; length over all, 295 feet 8½ inches; breadth extreme, 60 feet 1½ inches; depth from fore line to top of main deck beams at middle line, 20 feet 9 inches; draft, 18 feet 2½ inches; area of greatest immersed transverse section, 1037 feet; displacement to load water line, 6000 tons; indicated horsepower, 3000; metacentric hight, 10.2 feet; maximum speed, 13 knots; armor on sides, 12 inches; armor on turrets, 11½ inches.

Washington News.

(*From Our Regular Correspondent.*)

WASHINGTON, D. C., May 21, 1889.

The lead-ore hearing which ran through two days last week before the Secretary of the Treasury will from appearances be a somewhat prolonged question of consideration. The Secretary has given both sides the privilege of putting in testimony, and has extended the time to 15 days.

It is expected that it will require at least two weeks more to get the testimony into shape and another two weeks before a decision can be reached. Although it is a little early in the contest to talk about the probable decision, from the present indications, based upon general comments in the authorative quarters, it is more than probable that the result of the hearing will be in favor of a radical change in the present mode of levying duty on lead ores.

In a very significant comment upon the hearing it was stated that the admission of such large quantities of lead ore free of duty was a violation of the spirit and intention, if not the letter, of the tariff statutes.

The present tariff act places a duty of 1½ cents a pound on lead ore and admits silver ores free. It was hinted that if some fixed rule were not adopted to define what is lead ore and what is silver ore it would be possible to admit all the lead ores into the United States free, as very few such ores are without silver; therefore it would be an easy matter by mixing to raise the component metal of chief value to a higher standard than lead ore.

It is probable that the Department will fix some standard of classification by designating all ores containing more than 5 per cent. or some fixed quantity of lead as lead ores.

The Secretary of the Treasury appreciates the great importance of the decision, and will give it a very careful consideration before venturing upon a decision.

The hypothetical case before Secretary Windom recommending increased duties upon worsted cloths by classifying them with woolen cloths, which the Secretary of the Treasury has been considering, has assumed tangible form in an appeal from a decision by the Collector of Customs at New York. In that case the collector levied upon an invoice of worsted cloths the woolen cloth rate, to which the importers had taken exception, and the case now comes before the Secretary of the Treasury. This will result in a decision in a very few days.

The Secretary of the Treasury has promulgated the following decisions relating to customs duties upon metallurgical products:

POTASSIUM A METAL UNWROUGHT.

In an appeal from a duty of 20 per cent. on certain potassium the appellants claim that the merchandise in question should be exempted from duty by assimilation to sodium named in the free list. The appraiser, reporting on this appeal, states "that the merchandise was found upon examination to be the elementary substance known as potassium, the metallic base of potash;" that potassium is similar in many respects to sodium, but that the scope of the section of the Revised Statutes "being limited to articles bearing a similitude to articles chargeable with duty does not appear to prevail in this case." He further states that, inasmuch as said potassium is an unwrought metal, and not specially provided for, it was returned for duty. While the appraiser seems to misunderstand the scope of the similitude clause, since its last proviso clearly applies to unenumerated articles similar in material, quality and texture and the use to which they may be applied to articles specified in the free list, his conclusion that the potassium in question is not entitled to exemption from duty by assimilation to sodium appears to be correct, inasmuch as potassium is similar to sodium in some respects only, and as it was otherwise provided for as a "metal unwrought," as aforesaid. The claim of the appellants has been rejected.

RAZOR-BLADES DUTIABLE AS RAZORS.

An appeal having been made on a 50 per cent. ad valorem assessment of duty on certain razor-blades for 35 per cent. as cutlery, or 45 per cent. as manufactures of steel, the Department, affirming the collector's decision, says: "It appears that the merchandise in question consists of razor-blades which, although without handles, possess all the essential properties of razors and are in a condition ready for use when supplied with handles. Under these circumstances it would seem that the articles are in fact razors, and that the want of handles, which are merely appendages of the blades, does not affect their classification as such under the special provision for razors."

Southern Freights on Pig-Iron.

The Southern Railway and Steamship Association have issued a circular on pig-iron rates, to take effect on June 1. To the principal points the figures are as follows:

To	From Birmingham, Ala.	From Chattanooga, Tenn.	From Sheffield, and Florence, Ala.
Akron, Ohio	$4.00	$3 50	$3.75
Allegheny, Pa	4.65	4.15	4.40
Atchison, Kan	5.49	5.49	5.04
Bellaire, Ohio	4.65	4.15	4.40
Belleville, Ill	3.25	3.00	2.80
Bridgeport, Ohio	4.65	4.15	4.40
Cairo, Ill	2.75	2.50	2.50
Chicago, Ill	4.00	3.75	3.75
Cincinnati, Ohio	2.75	2.25	2.50
Cleveland, Ohio	4.00	3.50	3 75
Columbus, Ohio	3.50	3.00	3.25
Dayton, Ohio	3.50	3.00	3 25
Detroit, Mich	4.00	3.75	3.75
East Saginaw, Mich.	4.50	4.25	4 25
East St. Louis, Ill	3.25	3.00	2.80
Evansville, Ind	2.75	2.50	2.50
Fort Wayne, Ind	3.75	3.50	3.50
Greencastle, Ind	3.75	3.50	3.50
Indianapolis, Ind	3.25	3.00	3.00
Kansas City, Mo	5.49	5.49	5.04
Lafayette, Ind	3.75	3.50	3.50
Leavenworth, Kan.	5.49	5.49	5.04
Lima, Ohio	3.75	3.25	3.50
Louisville, Ky	2.50	2.25	2.25
Mansfield, Ohio	4.00	3.50	3.75
Memphis, Tenn	2.00	2.00	1.55
New Albany, Ind	2.75	2.50	2.56
Newark, Ohio	3.90	3.40	3.65
Peoria, Ill	4.00	3.75	3.75
Pittsburgh, Pa	4.65	4.15	4.40
Pullman, Ill	4.00	3.75	3.75
Sandusky, Ohio	4.20	3.70	3.95
South Bend, Ind	4.00	3.75	3.75
Springfield, Ohio	3.50	3.00	3.25
Steubenville, Ohio	4.65	4.15	4.40
St. Joseph, Mo	5.49	5.49	5.04
St. Louis, Mo	3.25	3.00	2.80
Terre Haute, Ind	3.25	3.00	3.00
Toledo, Ohio	4.00	3.50	3.75
Wheeling, W. Va	4.65	4.15	4.40
Zanesville, Ohio	4.00	3 50	3.75

A circular has also been issued relating to rates of freight on manufactured iron from Birmingham and Chattanooga. It does not differ from the rates published in *The Iron Age* of April 4, page 517.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, May 20, 1889.

A better feeling is perceptible in various branches of the Iron trade, caused by increasing inquiry and a somewhat larger volume of business. A widespread belief has existed for some time that the tide would certainly turn by midsummer, but predictions are now being made that June will see decided indications of an improvement, which may not at first be accompanied by higher prices, but will in time have that effect. The attitude of heavy consumers indicates that they are ready to place large orders for future delivery in lines now neglected as soon as they have convincing evidence that bottom has been touched

Pig-Iron.—The course of business during the past week would seem to presage a much more active business very soon. Some good orders have been placed for local Coke Iron, Southern Coke Iron and Lake Superior and Southern Charcoal. These sales were largely for early delivery, the Agricultural Implement manufacturers not being in the market yet with their season contracts. As far as can be ascertained, no orders have been taken up to this time for deliveries running into next year, but consumers are seeking to cover at least part of their monthly requirements until the summer of 1890, if they can do so at present prices. The Southern Iron most in demand of late has been Soft Iron, but some sales have been made, and in quite heavy quantities, of ordinary Foundry grades. Quotations continue about as they have been, with more or less shading to suit circumstances, governed by the extent of competition and the size of the order. We quote as follows for cash, f.o.b. Chicago: Local Coke Iron, No. 1, $16; No. 2, $15; No. 3, $14; Chicago and Bay View Scotch, $16.50; Lake Superior Charcoal, $19; American Scotch (Blackband), No. 1, $18 @ $18.50; Southern Coke, No. 1 Foundry, $16; No. 2 Foundry and No 1 Soft, $15.25; No. 3 Foundry, $14.75; No. 2 Soft, $14.25; Gray Forge, $13.75 @ $14; Tennessee Charcoal, No. 1, $19; No. 2, $18; ditto, lower grade, No. 1, $17; No. 2, $16; Alabama Car-Wheel, $25.25

Bar-Iron.—Orders are running all the way from carload lots to 50 tons, with quite a steady trade in this small way. Heavy buyers are holding aloof for the present, having their immediate wants well covered, and are indisposed to contract ahead at the higher rates which manufacturers are asking for that privilege. Prices are based largely on the rate asked by the Valley mills, which is 1.45¢ at mill, half extras, for Common Iron, not guaranteed. Single Refined Iron, of guaranteed tensile strength, is quoted at 1.70¢, half extras, at mill. Small lots from store are selling at 1 75¢ @ 2¢, according to quantity and quality.

Structural Iron.—The volume of business is fairly satisfactory in this line, but of course it runs mainly to Beams. Prices are firmly maintained, the mills making this kind of work being in receipt of large orders from other sections. Mill lots are quoted as follows, f.o.b. Chicago: Angles, 2.12¢ @ 2.15¢; Universal Plates, 2.15¢ @ 2.20¢; Sheared Plates, 2.20¢; Tees, 2.55¢, Beams and Channels, 2.90¢. Small lots from store are sold at 2 25¢ @ 2.30¢ for Angles, 2.65¢ @ 2.70¢ for Tees, and 3.4¢ for Beams.

Plates, Tubes, &c.—Dealers report that manufacturers of Plates are less disposed to accept orders at low prices and that some mills are unable to fill orders promptly. The advanced price on Wrought-Iron Pipe is said to be well sustained. Should trade continue to improve another advance may soon follow. Quotations from store are as follows: Nos. 10 to 14 Iron Sheets, 2.50¢ @ 2.60¢; Nos. 10 to 14 Steel Sheets, 2.75¢ @ 3¢; Tank Iron, 2.40¢ @ 2.50¢; Tank Steel, 2.50¢ @ 2.60¢; Shell Iron or Steel, 3¢; Flange Iron, 4¢; Flange Steel, 3.50¢; Fire-Box Steel, 4.75¢ @ 5.50¢; Ulster Iron, 3.75¢; Boiler Rivets, 3.75¢ @ 4.25¢; Boiler Tubes, 57½ % off for 1¼-inch and less and 62½ % off for 2-inch and larger.

Sheet-Iron.—The number of mills sold up and withdrawn from the market received further additions last week, and still orders for Black Sheets appear to be quite numerous. Prices are moving upward, and it would be difficult to find a place to put an order in at below 2.85¢ @ 2.90¢, at mill, for No. 27; Corrugating Sheets are 15¢ @ 20¢ ₱ 100 lb dearer. Store lots of Common No. 27 are quoted at 3.10¢ @ 3.30¢, according to quality.

Galvanized Iron.—The demand seems to be gradually improving. City cornice-makers and country merchants are increasing their orders, which come in more frequently. Makers of the best brands are refusing to meet the extreme low prices, because they find that they can now get orders enough to keep their mills full at better figures. From store Juniata is quoted at 65 % off and Charcoal at 65 % and 5 % off.

Merchant Steel.—There are no orders of importance in sight that will be placed for early delivery. There is a class of consumers who are watching the market very closely, and occasionally ask quotations on 500-ton lots for the purpose of feeling the tendency of prices. In such cases deliveries are not stated, but in placing the order they would likely extend over all of this year. Small orders for low-grade Steels are fairly plentiful, and prices remain steady at about the following quotations: Soft Steel Bars, 2.20¢ rates; Tool Steel, 7.75¢ @ 8¢; Specials, 12¢ @ 25¢; Crucible Spring, 3.75¢; Open-Hearth Spring, 2.50¢; Open-Hearth Machinery, 2.40¢; Sheet Steel, 7¢, 8¢ and 10¢; Tire Steel, 2.20¢ @ 2.25¢.

Steel Rails.—A light business is reported for the past week, but plenty of inquiries continue to be received. New railroad projects, which seemed to be hopelessly stranded but a few months since, are being resuscitated, and are securing funds to purchase track material, so that the future for the Rail trade is growing brighter. It would not be surprising if there was a pressure for short deliveries in the summer months which would appreciate prices, which are now quite firm, with $29.50 @ $30 quoted for strictly Chicago business.

Track Supplies.—The Rail trade having been quiet, but little business transpired in Fish-Plates last week. Other Track Material was also in limited demand. Small lots are quoted as follows: Steel Fish-Plates, 1.90¢; Iron Fish-Plates, 1.70¢ @ 1.75¢; Bolts with Square Nuts, 2.55¢; Bolts with Hexagon Nuts, 2.65¢; Spikes, 1.95¢ @ 2¢.

Old Rails and Wheels.—Old Iron Rails have been moderately active at about $20. This price appears very high in comparison with other kinds of material, but the supply is quite contracted. In Old Steel Rails there is nothing doing. Old Car-Wheels are nominally quoted at $16 @ $17 in the absence of large transactions

Scrap.—Dealers universally report complete stagnation. They continue to lay in stock when it is to be had at tempting figures, but very little goes out. Low-grade material holds its own better than high-priced stock, quotations being about as follows by dealers to consumers ₱ ton of 2000 lb: No. 1 Wrought, $17; Fish-plates, $18; Axles, $22; Horseshoes, $17; No. 1 Mill, $13; Cast Machinery, $11; Stove Plates, $9; Cast Borings, $8; Wrought Turnings, $10.50; Axle Turnings, $12; Mixed Steel, $10.50 @ $11; Coil Steel, $13.50; Leaf Steel, $15.

General Hardware.—The active condition of trade continues in Shelf Hardware which was noted last week, the leading jobbers being particularly busy. While the business of either April or May has not been equal to that of March, it has been more profitable, as the orders ran more into Hardware and less into staple goods. The large sizes of Tin Roofing Plates have been advanced 50¢ @ 75¢ ₱ box. Prices range from $9.50 to $10.50 on standard grades. The Heavy Hardware jobbers are complaining somewhat of dullness. Collections are fair.

Nails.—Jobbers report a pretty fair demand for Steel Nails, and quote $1.90 @ $1.95 in carload lots, and $2 from store in small lots. A rumor that the Western Nail Association is broken is being circulated in a quiet way. One of the mills has given notice of withdrawal, and this will be sufficient excuse for abandoning an agreement that has been of very little benefit for some time past. Wire Nails are quoted at $2.35 for small lots from store, and carloads at $2.30.

Barb Wire.—There is no change in the condition of the market. The demand continues good and prices low, notwithstanding the fact that makers cannot keep up with their orders. Painted Wire is quoted at 2.75¢ in small lots from stock and Galvanized at 3.35¢. These prices are demanded for carload orders.

Pig-Lead.—There is no change to report. Values have remained fairly steady at 3.75¢, though a weaker feeling prevailed toward the close of the week. Sales of 300 tons are noted at the above figures, and 3.70¢ bid for near deliveries.

Philadelphia.

Office of *The Iron Age*, 230 South Fourth St. PHILADELPHIA, Pa., May 21, 1889.

Pig-Iron.—The market has developed no new features since date of our last report, although its course seems to indicate that the declining tendency has been arrested. The higher qualities of Foundry grades are taken in liberal quantities at $18 for No. 1, while nothing below $16.50 has been mentioned in the other direction, with medium quotations for the general average of the offerings. Mill Irons show a similar steadiness, $14.50 @ $15 being realized for Good Neutral Irons, without any special evidence of disproportion between supply and demand at these figures. Southern No. 3 has been offered rather freely, a sale of 6000 tons in one lot having been made by Justice Cox, Jr., & Co., at a trifle over $14, delivered ex-ship Delaware River. The figures above named are believed to squarely represent the present condition of the Philadelphia market, and while the demand is not as active as could be desired, neither can prices be called weak. Holders are perfectly indifferent as regards business at less than the prices named, and further concessions appear to be quite improbable, unless sales are forced under special circumstances, such as a doubtful quality or to clean up odds and ends. In some directions there are prospects of a better demand although at this season it may not be safe to offer any very decided opinions on that point. Much will depend upon the turn of events further West. Any increase in the demand there would not only quicken the demand here, but would probably divert some brands from this into other markets. In other words, the position is extremely sensitive, and could be easily influenced

by developments favorable or the reverse, with the chances slightly inclining toward the former alternative. For the present, therefore, we have to report a waiting market, the outcome of the past week having been comparative steadiness, without much activity, closing with more inquiry and an apparent desire to pick up good Irons in liberal quantity, providing that prices are cut down to the lowest figures talked about 10 or 15 days ago.

Foreign Iron.—There is some inquiry for Bessemer, with buyers at about $18 for average qualities, $19 for special brands and $27.50 for 20 % Spiegel, c.i.f., duty paid. Sellers ask $19 @ $20 for Bessemer and $28 for 20 % Spiegel.

Blooms.—There is a good demand for Blooms and Billets, but prices are not as firm as could be desired, although in a general way the market is fairly represented by quotations as follows: $28 @ $28.50, at mill, for Nail Slabs; $30 @ $31 for Tank Slabs; $32.50 @ $33.50 for Shell Slabs; $36 @ $37 for Flange, and $38 @ $40 for Fire-Box; Charcoal Blooms, $52 @ $54; Run-out Anthracite, $41 @ $42.50; Scrap Blooms, $32 @ $33 ₱ "Bloom" ton of 2464 lb.

Muck-Bars.—The market has been rather tame of late, buyers holding off and sellers not willing to reduce their quotations. Sales are reported at $26.75, delivered, with $27 asked, for good qualities, and $26.50 bid.

Bar-Iron.—There is a better general demand, and although large orders are still scarce, mills appear to have secured a fair amount of business one way or another. Prices are said to be a trifle firmer, and the disposition is to get more money, as the output is somewhat affected by the hot weather. There is nothing yet that can be fairly called an advancing tendency, although manufacturers are not inclined to enter much business at current rates, believing that the chances are all in favor of a better market later on. Meanwhile, 1.72½¢ @ 1.80¢ is asked for Best Refined qualities, but, as usual, there is a good deal of irregularity, according to what the order may be. Skelp Iron is beginning to move a little, with sales at 2¢ for Sheared, and 1.75¢ asked for Grooved.

Plate and Tank Material.—There has been a considerable demand for Plates, and mills are nearly all full of orders for May and June delivery. Some business has been offered for July and August delivery at current rates, but the manufacturers have not felt at liberty to accept it, believing that better prices will be in force by that time. There is a great deal of work going on, and the demand for Plates is expected to be usually heavy during the fall months. Prices are still pretty well down to the lowest of the year, but, as already stated, manufacturers think they have got all the orders they ought to have at prices which barely return first cost, although no one seems inclined to be the first to stand out for an advance. Nominal prices about as follows: 1.85¢ @ 1.95¢ for Ordinary Plates and Tank Plates; 2¢ @ 2.1¢ for Universal Plates; Shell, 2.3¢ @ 2.4¢; Fire-Box, 3.5¢ @ 3.7¢; Steel Plates, Tank and Ship Plate, 2.2¢ @ 2.25¢; Shell, 2.5¢; Flange, 2¼¢ @ 3¢; Fire-Box, 3¼¢ @ 4¢.

Structural Material.—A fairly active demand is reported in this line, new business being somewhat in excess of the week's deliveries. Manufacturers are very much encouraged by the outlook, and while prices are still on a low plane, it is believed that the increasing demand will soon bring about a corresponding improvement in values. Meanwhile quotations are about as before, viz.: Bridge Plate, 1.95¢ @ 2.05¢; Angles, 1.95¢ @ 2¢; Tees, 2.4¢ @ 2.6¢; Beams and Channels, 2.8¢ for Iron or Steel

Sheet-Iron.—There is no special change to note in this department, the demand is well maintained, and prices are steady for all descriptions. Mills are running full without accumulating stock. Prices remain as before, viz.:

Best Refined, Nos. 14 to 20	3¢
Best Refined, Nos. 21 to 24	3.20¢
Best Refined, Nos. 25 to 26	3.40¢
Best Refined, No. 27	3.50¢
Best Refined No. 28	3.60¢

Common, ¼¢ less than the above.

Best Soft Steel, Nos. 14 to 20	3¼¢
Best Soft Steel, Nos. 21 to 24	3½¢
Best Soft Steel, Nos. 25 to 26	3¾¢
Best Soft Steel, No. 27	4¢

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, discount	65 %
Common, discount	67½ %

Steel Rails.—Business is still dull and inactive, although there are inquiries on the market which seem to promise a good deal of activity before the season is over.

Old Rails.—No sales have been reported in this market for some time past, so that prices are merely nominal at from $22 to $22.50, as covering both extremes of the market.

Scrap-Iron.—There is a demand for good lots at quoted rates, but other descriptions are dull and irregular. Prices about as follows: $20 @ $21 for cargo lots; $21 @ $21.50 for carload lots, delivered, or for choice, $22; No. 2 do., $14 @ $15; Turnings, $14 @ $15; Old Steel Rails, $18 @ $19; Cast Scrap, $15 @ $16; do. Borings, $9 @ $10; Old Fish-Plates, $23 @ $24; Old Car-Wheels, nominal, $17 @ $18, Philadelphia.

Wrought-Iron Pipe.—There is a good business doing, and at the advance recently quoted, prices are firm. Prospects are considered to be unusually promising as regards the volume of business, while prices show a hardening tendency. Discounts as follows: Butt-Welded Black, 52½ %; Lap-Welded Black, 65 %; Butt-Welded Galvanized, 45 %; Lap-Welded Galvanized, 52½ %; Boiler Tubes, 60 %.

Nails.—There is a good demand for Steel Nails, but Iron are very quiet, and, unless for Standard makes, prices are irregular. Carload lots about $1.80; lots from store, $1.90 @ $2.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave.
PITTSBURGH, May 21, 1889.

The general situation here is improving in some respects, while in others it is not. There is an increasing demand, but labor complications are growing more numerous. Mill owners say that it is impossible for them to pay the present wage-scale and compete successfully with other points where the cost of labor is much less.

The trouble at the Rail mill of the Allegheny Bessemer Company, at Duquesne, is regarded as being about over, as the mill is being operated by non-union men and may be placed in the list of non-union mills. At the Solar Iron Works (Wm. Clark & Sons), a non-union mill, there was a strike a few days since, owing, as alleged by the men, to the firm acting in bad faith, which is denied by the latter. The works have been started up again, and it is the intention of the firm to keep it a non-union mill.

It is expected that a considerable reduction will be demanded by mills operated by Amalgamated Association men when the wage-scale comes up for consideration next month, and unless it is conceded there will probably be a pretty general suspension for a time at least. The feeling continues to obtain that it would be much better to have this wage-scale settled for three years instead of one; that it would be more satisfactory for both interests, and that other lines of trade in this district dependent upon the Iron interest would be benefited thereby.

The river Coal interest is very dull at present. Many of the mines in the Monongahela and Youghiogheny valleys have shut down for the present, and until stocks in the down-river markets have been considerably reduced they are not likely to be started up again. It is claimed that present prices for Pittsburgh Coal in New Orleans scarcely cover laydown cost. It is claimed that nearly all the furnacemen in this district have been buying considerable Lake Ore recently, with the assurance on the part of the Ore companies that if the market should take a turn backward, which is not expected, they (the furnacemen) who have bought will be taken care of. In consequence, it is probable that some large Ore contracts have been made in this district.

Pig-Iron.—There is nothing particularly important to note, with the exception that the feeling appears to be gaining ground that the market has about touched hard pan, although here and there an operator is found who predicts still lower prices. So far as we can learn, none of the furnaces in this district are willing to sell Neutral Gray Forge below $14, cash, and some of them are indifferent in regard to contracting for future delivery even at that price; they are selling along for present or near-by delivery, but do not care to sell ahead. While some consumers are still holding off, there are others who would not object to contracting for future delivery at ruling prices; hence, while the market has been comparatively quiet the past week the general feeling, if anything, is firmer, and furnacemen generally are as indifferent about selling as consumers are in regard to buying, if not more so. The market is in that position that it would not require very much to stiffen it up, and there is a possibility if not a probability that those consumers who are holding back with the intention of filling up as soon as hard pan has been reached will wake up some of these days and realize that they have made a mistake. We quote prices as follows:

Neutral Gray Forge	$13.75 @ $14.00,	cash
White and Mottled	13.00 @ 13.50,	"
All-Ore Mill	14.50 @ 15.00,	"
No. 1 Foundry	16.00 @ 16.25,	"
No. 2 Foundry	15.00 @ 15.25,	"
No. 3 Foundry	14.50 @ 14.75,	"
No. 2 Charcoal Foundry	21.00 @ 21.50,	"
Cold Blast Charcoal	24.00 @ 27.00,	"
Bessemer Iron	16.00 @	"

No sales of Bessemer Iron reported. So far as we can learn there have been no sales below $16, cash, and it is doubtful whether it can be bought below that figure.

Muck-Bar.—Good strong neutral Muck may be quoted steady at $26, cash; it can be had at that figure, but nothing less. Some mills refuse to sell at that price. It has been discovered that there is a difference between that made for sale and for use by the maker; that the latter as a rule is much better than the former.

Spiegel.—Small sales of 20 % at $30 @ $30.50, cash, and of Ferromanganese, 80 %, at $58, cash.

Manufactured Iron.—The general Merchant-Iron trade continues slow for the season, but the demand is improving and some of the mills are moderately well employed; prices—that is, for first quality Iron—are still quoted upon a basis of 1.60¢ @ 1.70¢, 60 days, 2 % off for cash. There is a continued good demand for Skelp Iron, and all the mills making a specialty of it have about all they can do. Prices are firmer but unchanged; 1.62½¢ @ 1.65¢ for Grooved, and 1.90¢ @ 1.95¢ for Sheared

Nails.—There is no improvement to report in the demand for Cut Nails, and prices continue irregular, quoted all the way from $1.75 to $1.85 for 12d @ 40d, 60 days, 2 % off for cash. Wire Nails are quoted at $2.15 @ $2.20, 60 days, 2 % off for cash, for large lots, and $2.25 @ $2.35

in a jobbing way. Carnegie, Phipps & Co. deny having made any sales as low as $2.15, but we are informed that some large orders were taken by some firm recently at the price quoted. It is claimed that the Cut Nail has a better adhesive quality than the Wire Nail, and that at present prices the former is the cheapest of the two.

Wrought-Iron Pipe.—The Pipe trade continues active, the mills being all busy; some of them are sold several months ahead, and the combination prices are being faithfully adhered to. As stated in our last report, the Pipe mills are now all in the combination, and the market is in a very satisfactory condition. Prices remain unchanged. Discounts on Black Butt-Welded Pipe, 52½ %; on Galvanized do., 45 %; on Black Lap-Welded, 65 %; on Galvanized do., 52½ %; Boiler Tubes, 1¼ inches and smaller sizes, 57½ % off; 2 inches and larger, 62½ % off; Casing, 5⅝ inches, 62½ % off; other sizes, 60 %; 2-inch Tubing, 13¢ ℔ foot net; 3-inch Line Pipe, 20¢ ℔ foot; 6-inch do., 56¢; 8-inch, 90¢. The next regular monthly meeting of the Pipe Association will take place in Pittsburgh on June 8.

Old Rails.—The demand for Old Iron Rails continues light, while prices remain unchanged; sales of 1200 tons at $21.50 @ $21.75. Consumers say that they can buy all that they want at the inside quotation. Old Steel Rails are still quoted $17 @ $17.25 for short and $19 @ 19.50 for long lengths.

Steel Rails.—Both of the mills here are pretty well supplied with orders, and the market is reported firmer. Heavy sections may be quoted at $25 @ $26, cash orders, at works. It is thought the very low price of Rails will stimulate railroad building, and that in this respect there will be a better showing the latter part than during the first half of the year.

Billets, Blooms, &c.—Sales of Bessemer Billets and Blooms at $27, cash, which appears to be the ruling price. Nail Slabs, $26.50. It is stated that a firm at Wheeling has contracted with a mill here to convert Slabs into Skelp Steel, paying freight on the Slabs from Wheeling to Pittsburgh, and on the Skelp Steel from Pittsburgh to Wheeling, where it is to be made into Steel Pipe and shipped back to New York. Bloom Ends and Rail Crops ruled at $17 @ $17.25.

Railway-Track Supplies.—There is a fair business at unchanged prices; Spikes 2¢, 30 days; Splice Bars, 1.65¢ @ 1.75¢; Track Bolts, $2.75, with Square, and $2.85, with Hexagon Nuts.

Old Material.—Demand for everything in this line continues light, and prices are weak but unchanged; No. 1 Wrought Scrap, $18 @ $18.50, net ton; Car Axles, $24 @ $24.50; Wrought Turnings, $13; Cast Scrap, $14 @ $14.50 gross; Old Car Wheels, $18 @ $18.50 gross.

Louisville.

LOUISVILLE, KY., May 20, 1889.

Pig-Iron.—The market has been very quiet during the past week, with very little buying. Different views are expressed by consumers in regard to the course the market will take. Some hold that the conditions are such that a strong advance may take place during the course of the year. Others feel that the large number of furnaces, the accumulation of Iron, and the fact that so far there has not been a general movement to shut down, will necessitate extremely low prices for several months, and their fears are that Iron will go even lower. Buyers would prefer higher prices, as the low purchases are of no advantage, they in turn having to make extremely low prices to consumers. The Lady Ensley Furnace, at Sheffield, is now in blast and running largely on Nos. 1 and 2 Foundry, with some No. 3 Foundry. The furnace is using all-brown Ore and Pocahontas Coke, and the intention is to make one of the best Irons South. The Trussville Iron has been on the market for some time, with very satisfactory results. The Iron is strong and well graded, and consumers rank it with the best Southern Irons. We quote as follows:

Southern Coke, No. 1 Foundry, new classification	$14.75 @ $15.25
Southern Coke, No. 2 Foundry, new classification	14.25 @ 14.75
Southern Coke, No. 3 Foundry, new classification	13.75 @ 14.25
Gray Forge	13.25 @ 13.75
White and Mottled, different grades	12.75 @ 13.25
Silver Gray, different grades	13.00 @ 13.50
Southern Charcoal, No. 1 Foundry	16.25 @ 16.75
" " No. 1 Mill	14.75 @ 15.25
Southern Car-Wheel, standard brands	21.75 @ 22.75
Southern Car-Wheel, other brands	18.00 @ 19.50
Hanging Rock Coke, No. 1 Foundry	15.50 @ 16.00
Hanging Rock Charcoal, No. 1 Foundry	19.50 @ 21.00
Hanging Rock, Cold Blast	20.75 @ 22.75

Detroit.

WILLIAM F. JARVIS & CO., under date of May 20, 1889, report as follows: Business has been dull during the past week, and while there have been inquiries for a fair amount of Coke and Lake Superior Charcoal Irons, the sales have not been as large as usual at this time of the year. Notwithstanding the dullness, there are very few furnaces that desire to contract for deliveries very far ahead, unless at higher prices than are ruling at present. In most cases Lake Superior is held firm, but in a few instances we have heard of some cutting having been done, but are not prepared to say whether report is true or not. With a quiet market we quote as follows:

Lake Superior Charcoal, all numbers	$19.50 @ $20.00
Lake Superior Coke, all ore	18.00 @ 19.00
Lake Superior Coke, cinder mixed	17.25 @ 18.25
Standard Ohio Black Band	18.00 @ 19.00
Southern No. 1	17.00 @ 17.50
Southern Gray Forge	15.00 @ 15.50
Southern Silvery	16.00 @ 16.50
Jackson County (Ohio) Silvery	18.00 @ 18.75
Old Wheels	18.50 @ 19.00

Cleveland.

CLEVELAND, May 20, 1889.

Iron Ore.—The sales reported for the past week have included a considerable quantity of non-Bessemer Ore at an average price of $3.75 ℔ ton, Cleveland delivery. A few thousand tons of this Ore brought $4 ℔ ton, but a larger quantity $3.60 @ $3.75. Scattering orders for non-Bessemer Specular and Magnetic Ores at $4.75 @ $5 ℔ ton have also been placed. Additional sales to Eastern furnacemen have brought the aggregate purchases of buyers in that locality up to nearly 700,000 tons. Gogebic Bessemer Ores are in fair demand at $4.90 @ $5.25. The total business for the past week has, however, been considerably below the record for the preceding seven days. A large amount of Ore was sold, but the orders placed were mostly for rather small amounts, and the aggregate sales did not exceed 200,000 tons, bringing the total amount sold since the opening of the market for new Ore up to about 3,500,000 tons. Pittsburgh furnacemen are still buying sparingly, hoping for the same decline in prices that characterized the midsummer market in 1888. A scarcity in ready tonnage to load Ore has led to some talk of higher lake freights, but the charters reported for the week have been at the prevailing rate of 90¢ from Escanaba; $1.10 from Marquette, and $1.25 from Ashland and Two Harbors. The amount of Ore being shipped from the Lake Superior district is something enormous, over 600,000 tons having already been forwarded, against about 150,000 tons shipped up to a corresponding period last year. Dealers to-day report sales of Gogebic Ore from the Aurora and Ashland mines at $3.25, f.o.b. vessels Cleveland.

Pig-Iron.—The slightly encouraging features of the market have been retained, although there is little in the present situation to justify any enthusiasm or a very large measure of hope for the immediate future. There is a disposition on the part of the sellers to stand by the present quotations for desirable Irons for which the demand has improved. The following are the quotations:

Nos. 1 to 6 Lake Superior Charcoal	$20.00 @ $20.50
No. 1 Strong Foundry, Bessemer quality, ℔ ton	16.50 @ 17.00
No. 1 Strong Foundry, ℔ ton	16.00 @ 17.00
No. 2 Strong Foundry, ℔ ton	15.00 @ 16.00
No. 1 American Scotch, ℔ ton	16.50 @ 17.00
No. 2 American Scotch, ℔ ton	15.50 @ 16.50
No. 1 Soft Silvery, ℔ ton	17.00 @ 18.00
Mahoning and Shenango Valley Neutral Mill Irons, ℔ ton	14.00 @ 15.00
Mahoning and Shenango Valley Red Short Mills, ℔ ton	14.50 @ 15.50

Old Rails.—Sales of Old American Rails at $21 are reported and the inquiry is improving.

Manufactured Iron.—Sheets are firm and in good demand; Common Bar is still quoted at 1.60¢.

(By Telegraph.)

The official announcement to-day that freight rates for carrying Iron Ore from Lake Erie ports to the Pittsburgh and Mahoning Valley furnaces had been reduced breaks the deadlock between mine owners and the Carnegie interests, and 1,000,000 tons of Ore will consequently be sold within the next few days. Orders are already announced for the best grades of Gogebic Bessemer at $5.25, Cleveland delivery; for Menominee Bessemer, $4.90 and $5.15, and for large quantities of high-grade Bessemer Ores. The new rate to Pittsburgh is $1.05 ℔ ton, a reduction of 20¢, and to the Mahoning Valley 62½¢, a reduction of 10¢. Cleveland furnacemen will immediately ask for a corresponding reduction in Coke freights in order to compete with the manufacturers of Pittsburgh and the Mahoning Valley.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st., ST. LOUIS, May, 20 1889.

Pig-Iron.—The market remains in about the same condition as last noted. One sale of 500 tons Southern Gray Forge was made a few days ago at $13, four months' time, delivered at a point close by the city. This makes the price at furnace about $9.50 ℔ ton, which, to say the least, is not very encouraging. Of course sales of this character do not entirely represent the condition of the market, but they go far toward showing how anxious some furnaces are for business and what figures will be accepted to obtain same. The outlook is not very promising, and unless the demand improves prices are liable to go still lower, although this hardly seems probable, as buyers are sending in inquiries for some good round lots, which, if sales are consummated, will have a beneficial effect on prices, which are quoted as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry	$15.25 @ $15.75
Southern Coke, No. 2 Foundry	14.75 @ 15.25
Southern Coke, No. 3 Foundry	14.25 @ 14.50
Gray Forge	13.25 @ 13.75
Ohio Softeners	17.00 @ 19.00
Lake Superior Charcoal	19.75 @ 21.50
Missouri.	
Charcoal Foundry, No. 1	16.00 @ 16.50
Charcoal Foundry, No. 2	15.00 @ 15.50
Tennessee.	
Charcoal Foundry, No. 1	17.00 @ 18 00
Charcoal Foundry, No. 2	16.50 @ 17.00

Connellsville Coke, f.o.b. East St. Louis, $4.55; St. Louis, $4.70.

Bar-Iron.—The demand continues to improve, and there are some pretty fair orders being booked for the railroads, which appear anxious to a certain extent to place their orders, now that bottom seems to have been reached. Consequently there is a better feeling and mills are more hopeful. Prices show some signs of improvement in the near future, and are quoted with more firmness than for some time. Small lots from store, $1.80; carload lots, from $1.60 to $1.70, according to circumstances.

Barb Wire.—The demand keeps up strong for the season and mills are being kept well employed, and in some cases are pushed to make deliveries. Prices are firm and generally adhered to. Mills quote from $2.80 to $2.85 for Painted and from $3.40 to $3.45 for Galvanized. Carload lots are quoted at from $2.70 to $2.75 for Painted and $3.30 to $3.35 for Galvanized, f.o.b. St. Louis.

John W. Good, late with Sligo Iron Stove Company, St. Louis, and L. McGilvray, for a number of years agent for P. L. Kimberly & Co., Sharon, Pa., have formed a partnership as manufacturers' agents, and established themselves in the Laclede Building, St. Louis, Mo. Among the well-known firms represented by them are P. L. Kimberly & Co., Sharon, Pa.; Standard Iron Co., Bridgeport, Ohio; Lawrence Iron and Steel Company, Ironton, Ohio, and Calumet Iron and Steel Company, Chicago, Ill., for whom they represent the P. C. P. Steel Nail.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts., CHATTANOOGA, May 20, 1889.

Pig-Iron.—Much to the surprise of many of our Pig-Iron men the past week has developed a spirited demand, and prices are decidedly improved—*i.e.*, there is not the same disposition to accept offers that existed before, and upon the whole the atmosphere is somewhat brighter. This is about all that can be said of the situation now. Several round lots have been sold for future deliveries, and the idea has gone out that if large desirable lots are bought a little higher figure will be paid. There appears to be no letting up in the disposition of Northern capital to come down here to invest in mineral property, and many of them say as soon as they get matters straightened out they intend erecting furnaces.

New York.

Office of *The Iron Age*, 66 and 68 Duane street, NEW YORK, May 22, 1889.

American Pig.—The majority of sellers report the market quiet, with only a few comparatively large transactions reported. A feeling exists among a number of consumers that the much-talked-of contest between Northern and Southern furnaces still contains possibilities of lower prices. They argue that if all which is said in connection with the ability to place Pig-Iron on the market at low cost is true, there is still considerable margin for another cut. Southern Iron is being freely offered at $16, ex-ship, for No. 1 Foundry, and reports of prices below that figure are freely circulated. Thus far they have a foundation only in isolated instances. The Thomas Company report deliveries quite active, and they are taking new business very cautiously, it being claimed that the capacity is pretty well engaged. We understand that two more furnaces of the company are about to be blown in. We quote Standard Northern Iron, $16.50 @ $17.50 for No. 1; $15.50 @ $16 for No. 2, and $14.50 @ $15.25 for Gray Forge. Southern Iron is selling at $16 @ $16.50 for No. 1, $15 @ $15.50 for No. 2, and $14.25 @ $14.75 for No 3.

Scotch Iron.—The market is very dull, with Coltness nominally $21.50 @ $21.75; Summerlee, $21.25 @ $21.50, and Dalmellington, $20.25 @ $20.50.

Structural Iron and Steel.—The volume of business in the way of small orders for Architectural-Iron Work is quite satisfactory, and some larger orders are still pending. There is quite a lively inquiry for bridge work, but, in spite of the fact that the shops are well employed, competition is very keen and prices are low. We continue to quote Sheared Plates, 1.9¢ @ 2¢; Universal Mill Plates, 2¢ @ 2.1¢; Angles, 1.9¢ @ 2.1¢; Tees, 2.35¢ @ 2.5¢, and Channels and Beams, 2.8¢, on dock.

Plates.—There are a number of good orders in the market. We quote Iron Tank, 1.9¢ @ 2.2¢; Shell, 2.25¢ @ 2.4¢; Steel Tank, 2.15¢ @ 2.25¢; Shell, 2.35¢ @ 2.4¢; Flange, 2.55¢ @ 2.75¢, and Firebox, 3½¢ @ 4¢.

Bar-Iron.—The market remains dull. We quote: Carload lots on dock, Common, 1.6¢ @ 1.65¢; Medium, 1.65¢ @ 1.7¢, and Refined, 1.7¢ @ 2¢.

Steel Rails.—There is quite a run of small orders, which, it is claimed, can be filled at $27.50 at tidewater, which would net the active mills from $26.50 to $26.75, at mill. From the South there is considerable inquiry. But little business on a large scale is reported either East or West. We quote nominally $26.50 @ $27.50 at Eastern mill.

Wire Rods.—No business whatever is reported, quotations remaining nominally $41.50 @ $42 for Foreign Rods.

Old Rails.—We hear of no sales, and continue to quote the market nominally $22 @ $22.50 for Tees.

Fastenings.—We quote $1.90 @ $2 for Spikes, and 1.7¢ @ 1.9¢ for Angles, Iron or Steel.

Scrap-Iron.—The demand still remains unsatisfactory, and the amount of business being placed is very small. We continue to quote: No. 1 Scrap, $20 @ $21, according to the location of yard, for cargo lots, delivered; Turnings, $13.50 @ $14; Cast Scrap, $15 @ $16; Borings, $9.50 @ $10.

Spiegeleisen and Ferromanganese.—The market is very dull, with 20 % Spiegeleisen being offered at $27.50. A small business is being done in 80 % Ferromanganese at $57.50 @ $58.

G. H. Hull & Co. have established themselves at 71 Broadway as Pig-Iron merchants, Jared N. B. Reis being manager.

Financial.

General trade advices, excepting as encouragement is derived from the prospect of abundant crops, incline to a somber hue. A serious drawback is the difficulty of realizing profits on a declining market, especially in manufacturing, where rates of wages do not readily become adjusted to correspond with a shrinkage in values, expenses in other respects often remaining as before. It appears from a comparison of the average prices prevailing now and in 1860 that in a wide range of commodities entering into ordinary competition in about seven-eighths of all descriptions there is a decline of something like 24 %, and in casting about for an explanation the theory is advanced that the depression is a legitimate and inevitable consequence of the collapse of combinations designed to resist the downward tendency. Breadstuffs, grain and provisions are this week again quoted dull, weak and lower. In these lines continued fine weather for growing crops and corn planting has a depressing influence, taken in connection with a slack demand. A very large surplus in the yield of wheat this year is now considered assured, and this in addition to some 45,000,000 bushels of the old crop still in reserve—as a consequence of an artificial blockade of the export market at a time when more remunerative prices were possible. Just now the corn movement West is unusually large. Cotton is very strong, and spots are advanced $\frac{1}{16}$¢ on quotations, with a good export demand. Groceries are quiet, coffee dull, sugars steady, teas moderately active, other goods slow. Dry goods jobbers are in the transition period between fall and spring, with indications of an early development. In an opinion of the Interstate Commerce Commission, just printed, reference is made to the question of uniform classification of freight. The commissioners say this subject is now under consideration by a standing committee organized by selection from the railroads and associations in all parts of the United States, which is working in the direction of uniformity throughout the entire country. In this city favorable opinions are expressed by the railroad men of the practical workings of the law and the association over which Mr. Walker presides.

In the Stock Exchange markets interest has centered in the movements of the belligerent factions seeking to control the Oregon Transcontinental. An issue of $10,000,000 preferred stock was enjoined by the courts, and the Villard party then sought to retain control through purchases of stock. On Friday a partial corner was covered by purchases for non-delivery, and on Saturday the market became animated throughout. Chicago, Burlington and Quincy came to the front with a net advance of over 2 %. Atchison ranked second, closing 1 % higher, while Oregon Transcontinental, which was third in point of activity, closed with a net gain of 7 %. St. Paul preferred was a feature, and so was Rock Island, both at materially higher prices. The reorganization of the Wabash was completed by the sale of the last of the property in the hands of the receiver for $15,550,000. On Monday the excitement in Oregon partly subsided. The supposition that President Villard had gained a point had a marked effect upon the securities of the Northern Pacific. On Tuesday stocks were very active, and a reaction in the forenoon was followed by renewed buoyancy. Reading was the feature. Oregon Transcontinental had a further decline and the Northern Pacifics lost a fraction of Monday's advance, but the markets closed strong.

Government bonds closed as follows:

U. S. 4½s, 1891, registered	106¾
U. S. 4½s, 1891, coupon	107¾
U. S. 4s, 1907, registered	126⅝
U. S. 4s, 1907, coupon	126⅝
U. S. currency 6s	121½

The bank return for the week shows an increase of $5,231,750 in surplus reserve, which now stands at $14,082,325, the largest since February 23 last. The loans show a contraction of $3,645,500; the specie is increased $3,469,300; the legal tenders are up $2,477,400; the deposits other than United States are increased $2,859,800. The shipment of nearly $3,000,000 in specie will be reflected in the forthcoming statement. Despite the outward movement, money is extremely easy, time money, 2½ % for 60 days, 3 % for four months, 3½ % for six months and 4 % for eight months. Commercial paper in good demand, but offerings are light. Quotations are 4 % @ 4½ % for prime double name and 4½ % @ 5 % for best single name.

The market for sterling was steady. Recent shipments of gold resulted from small foreign purchases of securities, and further specie exports are looked for. Cot-

ton bills will appear in a few weeks. Posted rates are $4.88 @ $4.89½.

The total amount of bonds purchased from August 3, 1887, to date is $168,639,100, of which $61,590,250 were 4 per cents and $107,048,850 4½ per cents. Their cost was $194,859,750, of which $78,928,883 was paid for the 4 per cents and $115,930,866 was paid for the 4½ per cents.

The United States Savings Bank, Constant A. Andrews president, was opened in East Fifty-ninth street.

Failures during the week number 252, against 189 for the same time last year.

Metal Market.

Copper.—The conference that was being held among representatives of the Copper mining companies at the time of our last report resulted in an agreement that the price for deliveries made to consumers since the collapse of the syndicate is to be 12¢ for Lake Ingot, the same figure to apply to all fresh business up to July 1. As a basis for determining the selling price of their goods this figure suits the manufacturers very well, but they, on the other hand, do not exhibit the least anxiety for new business in Ingot Copper at the price fixed on Lake as long as the agreement exists between the companies and European bankers as to the disposal of accummulated supplies of American Copper on this side under control of the latter, nor among these about the enormous amounts held by bankers in Europe. Our consumers consequently try to get along as well as they may without buying a pound of Lake Copper at 12¢, feeling confident that the latter figure cannot be long sustained; if it were 10¢ instead, or less, it would be different. Under the circumstances we are not much nearer a practical solution of the general situation of the metal than we were a week since. A conference between the mines was held last night, at which "progress was made." London improved from £38.12/6, spot, at our last writing to £39.15/ yesterday, and futures from £38.10/ to £39.10/, sales summing up 1000 tons. The visible supply in England and France on May 15 was 122,740 tons. The price on Copper Tubing has been reduced 4¢, and on Brass Tubing 3¢. On Sheets the reduction has not yet been announced.

Tin.—London once more took an upward turn, with spot rising since our last from £92. 12/6 to £93. 17/6 yesterday, whereas futures gave way from £93. 10/ to £92. 10/, with sales aggregating 500 tons. During the day or two when the cable reports from the other side were a little more buoyant some 250 tons of Tin were sold, 150 of which on 'Change at 20.70¢ down to 20.60¢, spot; 20.90¢ @ 21¢, July, and 20.85¢, spot deliveries. At the Exchange, between calls, 30 tons spot were sold at 20.40¢. The closing price for spot Tin is 20⅝¢ @ 20¾. *Tin-Plates.*—Our market has been unexceptionally dull, with slightly lower figures in a few instances. Liverpool is nominally unchanged, but orders at a slight grading are being booked. We quote large lines, ordinary brands, ℔ box: Siemens-Martin Steel, Charcoal finish, $4.75 @ $5.50; Coke finish, $4.55 @ $4.65; Ternes, $4.12 @ $4.30; Coke Tins, $4.25 @ $4.35, and Wasters $4.12½ @ $4.15.

Lead.—As decision on the part of the Secretary of the Treasury in the Mexican Ore duty question may tarry for a month or more, the market here and in the West at once took a downward course once more; still there is a firm undertone at the reduced closing figure. Sales for the week amounted to some 600 tons, taken by consumers in the open market at from 3.75¢ down to 3.70¢, the market winding up at the inside figure. St. Louis quotes 3.50¢ @ 3.55¢.

Spelter.—The demand out West, for galvanizing purposes in particular, is described as being unusually cheary this spring; as at the same time the demand East is improving, we cannot quote Common Domestic any lower than 4.85¢, at which a moderate trade is being done. Silesian is worth 5¾¢.

Antimony—Has remained moderately active and steady at 13½¢ for Cookson's brand, and 12½¢ for Hallett's.

New York Metal Exchange.

The following sales are reported:

THURSDAY, May 16.

10 tons Tin, September.....20.85¢
20 tons Tin, July.....20.90¢
25 tons Tin, July.....20.95¢
25 tons Tin, June.....21.00¢

FRIDAY, May 17.

20 tons Tin, spot.....20.65¢
10 tons Tin, spot.....20.60¢
10 tons Tin, delivery May 20.....20.60¢
25,000 pounds Lake Copper, September..11.50¢

MONDAY, May 20.

10 tons Tin, spot.....20.00¢

TUESDAY, May 21.

100 tons Lead, September..... 3.80¢

WEDNESDAY, May 22.

30 tons Tin, spot.....20.40¢

Imports.

Hardware, Machinery, &c.

Baylis & Crandale, Mach'y, bxs., 2
Boker, Hermann & Co., Arms, cs., 58
Curley, J. & Bro., Cutlery, cs., 2
Chief of Ordnance, U.S.N., Machine
Chynes, S. E., Hardware, pce., 1; Guns, cs., 11
Field, Alfred & Co., Anvils, 201; Mdse., pgs., 2
Foley, Edw., Mach'y, cs., 11
Folsom Arms Co., H. & D., Arms, cs., 4
Hartley, Graham & Co., Mdse., cs., 27
Henderson Bros., Mach'y, pgs., 662
Hoe, R. & Co., Mdse., cs., 2
Kumhardt & Co., Mach'y, pgs., 8
Lau, J. H. & Co., Arms, cs., 11
McDermott, Walter, Steel Shoes, 20
Merch. Desp. Co., Arms, cs., 3
Russell & Erwin, Skates, box, 1
Sacks, & R., Nails, cks., 9
Sorzano, J. W., Mach'y, bxs., 4
Schoverling, Daly & Gales, Arms, cs., 22
Sheldon, G. W. & Co., guns, cs., 27
Taylor, Thos., Mdse., cs., 8
Thebaud Bros., Mach'y, pgs. and pcs., 161
Van den Toorn, W. H., Arms, cs., 5
Werlemann, H., Arms, cs., 6
Ward, James E. & Co., Spikes, cks., 48; Locomotive and connections
Wiebusch & Hilger, Lim., Mdse., cs., 22; Arms, cs., 10

Coal Market.

The large Anthracite Coal companies appear to be making a spasmodic effort to put new life in the trade so far as this end can be brought about by increased activity at the mines. After many weeks of comparative idleness nearly all the collieries of the Pennsylvania Coal Company at Pittston have resumed on half-time, and those of the Delaware and Hudson Company in Carbondale and vicinity on three-quarters time. The Reading Company are prepared to put on the market 1,000,000 tons of Coal per month, equal to about 25 % of the total monthly production heretofore, but it is stated that the number of working colleries will not be increased before June, as the stock on hand at Port Richmond is about 200,000 tons. The railroad company have added 1200 cars and 60 locomotives to its equipment. In the Lackawanna Valley several breakers started up during the week. The reported production for the week ending 18th inst. is 673,500 tons, an increase of about 90,000 tons compared with the previous week and the largest output recorded for a long time. Compared with the same week last year the increase is 56,000 tons. The aggregate is still about 1,500,000 tons behind the corresponding date in 1888. The principal gains last week were in the Lehigh Valley and in the Reading district. Better employment will prevent the threatened migration of colliers to other districts. Shippers are detained by the scarcity of vessels, and freights are high.

Respecting prices the Philadelphia *Ledger* says. "Many of the contracts for Anthracite placed recently are for Coal for delivery during the next 90 days at the 'cut' prices which were ruling in the latter part of April and the first or second week of this month."

A. Pardee & Co. put about 50,000 tons on the Philadelphia market at 10¢ reduction, but offered none outside.

Bituminous Coal is plenty at lowest quotations.

A meeting of sales' agents was called for Wednesday to consider the expediency of an advance. Outsiders believed no chance in this direction would take place before July 1.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, May 22, 1889.

Merchant Bar Copper for immediate delivery has been scarce on the open market and the fluctuations in price have been small. The producing companies are still supplying the consumptive demand at fair rates, but decline to sell for forward unless covered. The French banks have apparently kept out of the market.

Fully 3000 tons Anaconda Matte have been offering on the market, and at last accounts only 1800 tons had been sold. The price realized was 8/.

Negotiations are in progress for the formation of a syndicate to purchase the assets of the Société des Métaux. English and French financiers are interested in the project. If successful, a public issue will be made in Paris and London

Small shipments from the Straits, due to dealers there retaining supplies, served, in connection with continued purchases for America, to impart strength to the Block Tin market early in the week. Subsequent realization and very dull demand caused a reaction, and prices are today about £1 lower than a week ago, with the market rather depressed.

There has been no improvement in the business in Tin-Plate, but makers are hopeful, and anticipate a larger demand. Ordinary sorts are still a drug on the market,

The strike at the Worcester and the Forrest works has terminated, and the mills will be started up shortly. Six of the largest firms in Midlands have joined a combination to advance prices.

The Pig-Iron market has been rather dull, particularly in the warrant speculation, and the "bears" have sold freely. Prices for makers' brands of Scotch are barely steady, and Middlesboro' has sold 3d off. Six furnaces have been relit in Scotland. The Dixons' works have sold 25,000 tons Cumberland Hematite for Italy recently, and further business of magnitude for the same market is said to be under negotiation.

In the Steel trade there is a very good business, more particularly in Rails, Blooms, Billets and shipbuilding descriptions. Prices are firm all through, but no higher than last week.

Old Material is difficult to buy, except at full figures, but there is no business of importance passing in Rails or in Scrap.

Scotch Pig.—Business has been rather slow and prices have varied but little.

No. 1 Coltness,	f.o.b.	Glasgow	55/6
No. 1 Summerlee,	"	"	54/6
No. 1 Gartsherrie,	"	"	52/6
No. 1 Langloan,	"	"	54/6
No. 1 Carnbroe,	"	"	47/3
No. 1 Shotts,	"	at Leith	53.6
No. 1 Glengarnock,	"	Ardrossan	51/6
No. 1 Dalmellington,	"	"	46/
No. 1 Eglinton,	"	"	44/

Steamer freights, Glasgow to New York, 2/6; Liverpool to New York, 10/.

Cleveland Pig.—The trade moderate at present and prices barely steady. No. 3 Middlesborough, G.M.B., quoted 39/ prompt.

Bessemer Pig.—A very fair business in this line and prices steady. West Coast brands, mixed numbers, 49/, f.o.b. shipping point.

Spiegeleisen.—The market remains firm, with demand good. English 20 % quoted 82/6, f.o.b. at N. W. England shipping point.

Steel Rails.—Demand fairly active, and the market very firm. Heavy sections quoted at £4. 12/6, and light sections £4. 17/6 @ £5, f.o.b. at N. W. England shipping point.

Steel Blooms.—There is still a good business at firm prices. We quote £4. 2/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Prices firm and the demand fairly active. Bessemer, 2½ x 2½ inch, £4. 10/, f.o.b. at N. W. England shipping point.

Steel Slabs.—Only a moderate trade in these, but sellers firm. Bessemer, £4 2/6, f.o.b. at N. W. England shipping point.

Old Rails.—The trade moderate, but sellers firm. Tees quoted at £3. 5/ @ £3. 7/6, and Double Heads, £3. 12/6 @ £3. 15/, c.i.f., New York.

Scrap-Iron.—Sellers firm on prices, but the demand moderate. Heavy wrought quoted at £2. 2/6 @ £2. 5/, f.o.b.

Crop Ends.—A moderate business and prices unchanged. Bessemer quoted £2. 10/ @ £2. 12/6, f.o.b.

Tin-Plate.—Rather more business than last week, but the movement still moderate. We quote, f.o.b. Liverpool:

IC Charcoal, Allaway grade	15/3 @ 15/6
IC Bessemer Steel, Coke finish	13/6 @ 13/9
IC Siemens " " "	14/ @ 14/3
IC Coke, B. V. grade	13/ @ 13/3
Charcoal Terne, Dean grade	12/ @ 12/3

Manufactured Iron.—Trade rather slow this week and prices without change. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars				@	8	2	6
" Common "				@	6	0	0
Staff. Bl'k Sheet, singles				@	7	15	0
Welsh Bars (f.o.b. Wales)	5	5	0	@	5	7	6

Copper.—Less stock moving, but prices held quite firmly. To-day's prices for Bars were £39. 12/6, spot; £39. 7/6, three months' futures. Best selected, £44. 10/.

Tin.—There has been a fairly active business at irregular prices. Straits quoted to-day at £91. 12/6 @ £91. 17/6, spot, and £92. 10/ for three months' futures.

Lead.—Business fairly active and prices quite firm. Quoted £12. 15/ for Soft Spanish.

Spelter.—There continues to be a brisk demand and prices are strong. Quoted at £18 for ordinary Silesian.

H. H. Mansfield, 36 Pine street, has been appointed agent for New York and vicinity of the Frankford Steel Company, of Philadelphia, for their Steel Forgings, Steel Castings, Tool Steel and other products.

Foreign Markets.

EQUIVALENTS.

	Cents.
Franc, Peseta or Lira	19.3
Florin (Netherlands)	40.2
Florin (Austria)	35.9
Milreis (Portugal)	$1.08.
Milreis (Brazil)	54.6
Mark (Germany)	23.8
	Pounds
Kilogram	2.205
Picul	134.

BRAZIL.

PARA, May 4, 1889.—*India Rubber.*—The season on the Madeira and Cayari rivers is reported to be very healthy, and thus Rubber receipts this year are expected to be exceptionally heavy. The importance of the Rubber trade in Brazil can be judged by remembering that the export of Rubber from this port during the past year amounted to 15,014 tons, of which 8890 went to the United States and 6124 to Europe.—*Diario.*

EAST INDIES.

SINGAPORE, April 9, 1889.—*Tin.*—Our last report was dated the 26th ult. We have to report a continued scarcity of all our staples, and a very small business in consequence. The market for Tin opened at $35.75 ℔ picul, but with moderate arrivals it quickly reflected the firmer feeling in London and advanced to $36.75, at which several transactions have been made. To-day there are buyers, but no sellers, at $36.12½. The supply during the next six weeks will be on a reduced scale, and it is estimated that the year's production will not be over the average. *Gum Copal.*—A few odd lots have been sold at full prices for low qualities, but the bulk of the arrivals goes to swell the already considerable stock which dealers hold for higher prices. *Tonnage.*—Rates to London by steamer are steady at 40/ @ 45/ for dead weight and light freight respectively. *New York via Cape.*—The Liguri is a full ship and the Edward Kidder only requires a little more light freight to be similarly situated. For Boston the berth is filled by the fixture of the Obed Baxter. The Oanfa, which steamer left hence for New York on March 30, took 1262 piculs of Tin, so that the shipments from the Straits Settlements to the United States to date sum up 31,563 piculs. *Exchange*—Touched 3/0⅞ for six months' sight credit drafts, but closes firm at 3/.—*Gilfillan, Wood & Co.*

MANILA, May 13, 1889.—*Hemp.*—There are buyers at $15.25, against $8.12½ ℔ picul same date last year, equaling ℔ ton, cost and freight, £50, against £27. 10/. Since January 1 there cleared for the United States 105,000 bales, against 70,000 in 1888, while there remain loading 21,000, against 4000. Cleared for Great Britain since January 1, 105,000; loading for do., 4000; cleared for all other ports, 16,000, against 28,000; receipts at all ports since last cable, 2000, against 5000 and since January 1 233,000, against 206,000 in 1888 and 158,000 in 1887. *Freight*, $7.50, against $5.50. *Exchange*, six months' sight, 3/6¼, against 3/5.—*Ker & Co., to their agent in New York, Mr. Charles Nordhaus, 89 Water street.*

COLOMBO, Ceylon, April 4, 1889.—*Plumbago.*—Greater firmness has developed during the week. We quote at the close in rupees ℔ ton: Large lumps, 145 @ 170; ordinary lumps, 125 @ 160; Chips, 80 @ 95, and Dust, 40 @ 65. Shipments since October 1 have been as follows: To England, 78,162 cwt.; to Hamburg, 5418; to Bremen, 659; to Antwerp, 5101; to Holland, 437; to India, 63; to Australia, 203, and to the United States 76,340—together, 163,383, against 119,125 in 1888, 114,207 in 1887, and 104,504 in 1886. *Coir Yarn* Nos. 1 to 4 remains steady at 7 @ 13 rupees ℔ cwt. *Exchange*, six months' sight, 1/4 11-16.—*Volkart Bros. to their agent in New York, Mr. John W. Greene, 82 Wall street, New York.*

BELGIUM.

BRUSSELS, May 8, 1889.—*Iron.*—The Chamber of Deputies referred the Pig-Iron duty to the Minister of Finance, who proposes to reduce it one-half, from 5 francs to 2½ francs ℔ ton, and abolish the drawback hitherto allowed Bessemer Pig, of 2½ francs henceforth, also to pay 2½ francs duty. The Chamber will have to decide in the matter. Rolling-mills in the North of France still compete with our's in Belgium for the lack of orders at home. They have reduced working days by half, and Belgian operatives begin to return, as even at lower wages here they do better, work being more than sufficient in our Iron districts. The quotations are for Foundry Pig, 5.10 @ 6.50 francs ℔ 100 kg.; Forge ditto, 4.80 @ 5.80 francs; Merchant, No. 1, 12.50 francs; Beams at Antwerp, 11.75 francs; Angles, 13 francs, and Sheets and Plates, 16 @ 25 francs.—*Moniteur des Intérêts Matériels.*

HOLLAND.

ROTTERDAM, May 2. 1889.—*Tin.*—The 14,000 piculs Billiton offered at auction at Batavia on April 24 averaged 63.45 guilders ℔ picul, costing to sell here 55.62½ ℔ 50 kg. per steamer. The next sale of a similar quantity will come off toward the end of next month. The following statement shows the position of Banca Tin in Holland on the 30th April from the official returns published by the Dutch Trading Company:

		1889.	1888.	1887.
Import in April	Slabs	14,000	24,000	23,739
Total four months	"	60,973	88,136	65,909
Deliveries in April	"	17,898	4,500	13,457
Total four months	"	51,188	26,600	50 438
Stock second hand	"	23,761	38,955	16,368
Unsold stock	"	151,285	114,436	75,709
Total stock	"	175,046	153,391	92,077
Afloat	Piculs	4,300	6,400	4,500

Statement of Billiton:

Import in April	Slabs	9,550	15,300	5,500
Total 4 months	"	31,676	41,076	30,374
Deliveries in April	"	6,685	4,275	7,237
Total 4 months	"	25,628	16,171	31,662
Stock	"	25,348	41,033	21,333
Afloat	Piculs	24,500	21,000	16,000
Quotation 30th April:				
Banca		f 55	f 70	f 62
Biliton		f 54⅞	f 65	f 61½

(*De Monchy & Havelaar.*)

GERMANY.

HAMBURG, May 8, 1889.—*Iron.*—Pig-Iron has on the whole continued active in Rhenish Westphalia, including Spiegel for home use, at 66 marks ℔ ton, less so for export. Forge Pig is scarce and wanted at 58; Foundry ditto sustained, Thomas is in lively request at 47, and Bessemer at 58 and even above these figures. English on the West Coast, 50/. Finished Iron is doing well. Southern rolling-mills have raised their price 3 marks ℔ ton for Merchant. Thin Sheets are, however, neglected, and the Wire branch is still repressed, exportation still flagging. The quotation at Dortmund for Wire Rods is 110 @ 120; for Steel Rails, 120 @ 125.—*Borsenhalle.*

Ore Freights Reduced.

At a meeting of the Pittsburgh agents of the lines controlled by the Pennsylvania Company, the Baltimore and Ohio Railroad, the Pittsburgh and Western Railroad, the New York, Pennsylvania and Ohio Railroad, and the Lake Shore and Michigan Southern Railroad, held in Pittsburgh on Tuesday, the 21st inst., a considerable reduction on frieght rates on ore from Lake Erie points was made. We give below the principal points of shipment to which reductions were made, and also the old and new rates. They are as follows:

Point of shipment.	Old rate.	New rate.
Pittsburgh, Allegheny, Chartiers, Beaver Falls, Sharpsburg, Rankin, Bessemer, Munhall, Cochran, Demmler, McKeesport	$1.25	$1.05
Sharpsville, Sharon, New Castle	.72½	.62½
Struthers, Youngstown, Girard, Haselton, Lowellville, Niles	.72½	.62½
Johnstown, Conemaugh, Dunbar, Scottsdale, Everson, Oliphant, Uniontown, Fairchance	1.60	1.34
Leechburg, Apollo	1.35	1.22
*Kittanning	1.40	1.40

* The rate to Kittanning will not be charged for the present.

The above rates are per ton of 2000 pounds, and will go into effect on Tuesday, the 28th inst.

It is stated that the Pennsylvania Railroad Company have decided to make another innovation in their service by placing on the engines a connection with the steam pump, by which a hose can be attached, and in case of fire be of great service. Whenever a smash-up or wreck of passenger cars takes place, especially in the winter, when the car stove is doing its best, a great many lives are lost by fire. The new arrangement, it is hoped, will prevent a great many casualties. A few days ago it was given a test. The apparatus was attached to an ordinary shifting-engine and at a given signal the pump was put in motion. The trial was made at the West Philadelphia yards and the pump had force enough to throw the stream over the highest buildings. It has now been decided to put the apparatus on all the shifting-engines. The hose, which

will be about the length of six cars, will be carried on the tender. It is also proposed to equip the crews of the various trains and train them in the fire drill. If they prove successful a number of the passenger engines will also be equipped.

The Sweating System in England.

However opinions may differ as to what is termed the "sweating system," few will dispute the value of the inquiry into it, its effects and the remedies by the Lords' committee, appointed at the instance of Lord Dunraven. That committee of inquiry will, at any rate, elicit the facts, and facts must be the basis of legislation if the measures proposed are to be of any service whatever. The sweating system, as practiced more especially in connection with the tailoring trades in the metropolis, was dealt with in a powerful novel by the Rev. Charles Kingsley in 1849, now 40 years ago. From that day to this, says *Engineering*, the evils of the system have been recognized and frequently denounced; but the system has grown; it has extended to many other trades—it is, indeed, almost universal wherever domestic industries are carried on. It is an almost inevitable incident in connection with modes of manufacture carried on under the domestic system at the homes of the producers or in small workshops attached thereto. The factory and workshop acts may and do touch many of those small workshops where children and young persons are employed, but they fail to reach the evil where it is most disastrous, and in cases where adults only are employed they do not touch it at all.

The nail and chain makers of Cradley Heath and its district have suffered and are suffering from many of the evils incident to a domestic industry. Indeed, in some respects there is a concentration of nearly all the evils associated with and arising from this mode of manufacturing. Wages are low ; the hours of labor long ; women and children are employed to an extent and under conditions which remind us of their employment in mines at the date of the Commission of Inquiry, in 1840–41. And, then, the sanitary condition of the district appears to be almost worse than it was when the sanitary inquiry into the condition of the laboring population was instituted in 1840. A recent witness before the committee stated that the death-rate of children in this district was, in 1888, equal to 10 per 1000, while the general death-rate was 18.2 per 1000. The child mortality is thus considerably over one-half the total death-rate, whereas, taking the whole of England and Wales, it is under one-third. The condition of the dwellings is described as most dilapidated, the sanitary arrangements most defective and the water-supply foully tainted with sewage soil. The whole population is described as "overworked and underfed." Overcrowding is general, decent sleeping accommodation is the exception and utter wretchedness, misery and privation are the usual lot of the people.

Turning to the reports of the commissioners appointed to inquire into the sanitary condition of the laboring population in 1840 we find a similar state of things in connection with the nail-making and cognate trades. The cottages generally consist of one room down-stairs and two up-stairs, with a nail-shop attached. Nailers' children at 10 years of age earn about 2/ per week. The price paid for making nails has been reduced to one-fifth within the last three years, cut nails being now much used. The sanitary condition of the district is described as so bad that a serious outbreak of typhus fever occurred, attributable to want of proper drainage, the filthy habits of the people and the cellar accommodation. The nailers, it is stated, did not pay much rent, their wages were low and their condition was filthy and ragged in the extreme; the latter fact, it is said, may be attributed to the fact that girls are put to the nail-block before they have learned to sew. The children never went to school, as on week-days the parents could not afford to lose their earnings, and on Sunday they were so ragged that they were ashamed to send them to school. In many instances the whole family, male and female, sleep in one room, of not more than 12 feet square, including father and mother and grown-up sons and daughters, to the number of from seven to nine, and even more, persons. Such was the condition of things in 1840, some 50 years ago; according to recent testimony matters have not materially changed for the better in the nail and chain making districts.

The wail of woe from the Cradley Heath and surrounding districts is no new experience, though it is a sad one. Some 30 years ago a great strike took place in this district, nominally in consequence of an employer insisting upon the workmen making good some damage caused by rattening. But the real cause of the strike and of the rattening was the deductions made from the poor wages of the workpeople, on one pretense and another, then so common in this industry. The strike assumed a demand for an increase of wages. After a prolonged struggle the men obtained a substantial advance in wages, although at great cost, much suffering and after many serious outrages. In 1886 another prolonged struggle took place, when the men regained a trifle of the wages lost during the preceding ten years. At that time the men, women and children were in a state of semi-starvation for nearly six months.

The Duluth *Herald* reports that S. P. Ely, of Cleveland; G. C. Stone, of St. Paul, and others are developing iron-ore property in the mountains on the east coast of Cuba. Breakwaters and harbor works will have to be constructed at a cost ranging between $750,000 and $800,000. Stripping is now being carried on, but no ore will be shipped for a year or a year and a half. Analyses show the ore to carry 62 to 66 per cent. of iron, with 0.006 to 0.026 of phosphorus and 0.02 to 0.04 of sulphur. It is estimated that the cost will be $4.20, f.o.b. ship United States harbors, duty paid.

A vertical wall 100 feet high in St. Louis was thrown 18 inches out of line by a high wind. The building was easily righted by diagonal trussing on the upper floors and the application of jack-screws, while 12 heavy I-beams fastened by channel bars were placed in position in the first floor and basement.

Fully 200 members of the American Society of Mechanical Engineers convened in Erie, Pa., on Tuesday, and heard an address from Hon. Horace See, of Philadelphia, the retiring president. The address was devoted to industrial education.

The new building for the great smelting works at Anaconda, near Butte City, to replace the one recently burnt, will be composed entirely of iron. According to contract with Connecticut men, the material is to be shipped and the building completed in 57 days.

The fourth Ensley Furnace of the Tennessee Coal, Iron and Railroad Company, near Birmingham, Ala., has been recently blown in.

The Silver Question.

Even the most far-seeing confess themselves beclouded when attempting to predict the future of silver, but somewhere in the distance grave difficulties may be discovered. Shall we have bimetallism or monometallism? Very few of the strenuous advocates of a silver currency have conceded that this question was in any way involved. Their simple demand is give us silver, and without stint. Meanwhile, as the accumulation in the Treasury vaults have increased to enormous proportions, the silver champions have become more outspoken, and it is boldly proclaimed that the gold standard must ultimately be abandoned, in which event "while both metals will continue to be legal measures of value, silver will predominate, and we shall practically have all our assets measured by the silver dollar." This event we are told "is surely coming" under the system of coinage now being pursued, and that the sooner this agony is over the better. This language is none other than that of the veteran financier, John Thompson, of New York, under whose presidency the first national banking institution, under the new law, was organized. It would thus appear to be the avowed purposes of the silver kings like Senator Stewart, of Nevada, to substitute silver for gold and they now feel themselves strongly enough entrenched behind their silver barricade of $328,000,000, that sum being the total coinage of silver dollars under the act of February 28, 1878, providing for the Bland dollar of 412½ grains. It has taken only about ten years of superabundant silver coinage to reach the point where the country is asked to open the sluice-way and invite the cataclysm. Scarcely was the new Secretary sworn in before Mr. Stewart in the special session of the Senate, presented the following resolution:

Resolved, That it is the sense of the Senate that the business of the country requires the purchase by the Secretary of the Treasury of $4,000,000 worth of silver bullion per month for coinage during the provisions of the act of February 28, 1878.

The grand point made is that the coinage of $4,000,000 a month would cause such an increased purchase of silver that the depreciation of the market value of the metal would be arrested, bringing the value of 412½ grains of silver bullion nearer to that of 25.8 grains of gold, thus tending speedily to restore the bimetallic standard of gold and silver as it formerly existed. This would be very fine for the constituency represented by Mr. Stewart: "Prior to 1873," Mr. Stewart reminds us, "both gold and silver were available in the hands of the debtor class to meet their obligations." As the Bland dollar can now be manufactured at a cost of about 70 cents each, the scheme has a close resemblance to a fraudulent trick, and it is reasonably assumed that the debtor class—all who have troublesome mortgages and the like—would regard the proposition with extreme favor. Meanwhile, how is the creditor class to be protected? The latter, it should be borne in mind, comprises not only "bloated bondholders," monopolists, owners of real estate, mortgages, &c., but thousands of the industrious poor who have small investments—the savings of a lifetime, and other thousands, comprising widows and orphans depending in like manner upon eventually receiving the full equivalent of a gold dollar. Possibly, however, these latter are of no political importance and not to be regarded. Despite these pessimist observations, however, we may hope the evil day is far off. The disturbing feature in the present circumstances is that the silver-dollar men, quite resigned to the situation, have only to say, "the sooner the better."

Hardware.

The past week has developed comparatively few changes in price, the market being characterized by a rather weak tone, with a tendency toward lower quotations in several lines. The demand is only moderate, and is limited to assorted lots for immediate requirements. There is some complaint in regard to collections, which are rather sluggish.

Wire Nails.

A great many Wire Nails were purchased early in the season, and we hear of many instances in which buyers are loaded up with enough of the goods to carry them for some time to come. In this condition of things, as would naturally be expected, the demand is somewhat limited, and comparatively few large orders are being placed. The aggregate of business is, however, referred to as fair. Prices are made on a basis of about $2.20 to $2.25, at mill, and small lots from store are sold at the usual advances.

Barb Wire.

The demand in this market continues good, and some difficulty is experienced in filling orders as promptly as is desirable. Prices are without change on the basis of 3.5 cents for carload lots, 3.6 cents for 3-ton lots and 3.8 cents for small lots, with the usual deliveries.

Cut Nails.

Lately resales of a block of 10,000 kegs bought from one mill by another have created irregularity. It is believed that the lot in question is now marketed. We continue to quote $1.80 to $1.85 for carload lots in dock for Iron Nails.

Tackle Blocks.

The manufacturers of Tackle Blocks have united in adopting a revised list, which we print below, this list having gone into effect on the 20th inst. It will be observed that the prices for the regular line of ordinary Mortise Blocks, inside iron strapped, is the same as that published in our issue May 2, the other lists being of subsequent revision, and the whole is now published as the standard list for this line of goods. All the principal makers have united in adopting this revised list, in which the inequalities of the old list are corrected, and the prices made to correspond with the present cost of the goods. The lists, as given below, are subject to the following discounts:

	Per cent.
Ordinary Mortise Loose Hooks	50
Ordinary Mortise, other than Loose Hooks	40&10
Wide Mortise, 7 to 16 inches inclusive	40
Wide Mortise, 18 to 24 inches inclusive	30
Galvanizing Straps	net
Snatch Blocks, Boston pattern	40
Snatch Blocks, other than Boston pattern	40&5
Yacht Blocks	35

Composition Self-Lubricating Bushed.

Ordinary Mortise Loose Hooks	30
Ordinary Mortise, other than Loose Hooks	25
Wide Mortise, 7 to 24 inches inclusive	30
Snatch Blocks, Boston pattern	30
Snatch Blocks, other than Boston pattern	30&5
Hoisting Blocks, single only	30

Add extra for all Loose Swivel Hooks and Swivel Jaws as heretofore.

The following are the revised lists above referred to:

STANDARD PRICE-LIST OF INSIDE IRON-STRAPPED TACKLE BLOCKS, MAY 20, 1889.

Iron-Strapped Snatch Blocks. Composition Self-Lubricating Bushed.

Size.	Price.	Size.	Price.
6	$5.25	14	$16.50
7	6.00	16	22.00
8	7.25	18	31.00
9	8.50	20	46.00
10	11.00	22	68.00
12	13.00	24	86.00

Inside Iron-Strapped Blocks (Ordinary Mortise). With anything except Loose Swivel Hooks and Swivel Jaws.

Size.	Mortise.	Iron Bushed. Single.	Iron Bushed. Double.	Iron Bushed. Triple.	Roller Bushed. Single.	Roller Bushed. Double.	Roller Bushed. Triple.
3	9-16	$0 70	$1.30	$1.75	$1.10	$2.00	$2.90
3½	9-16	.75	1.45	2.00	1.15	2 20	3.15
4	11-16	.85	1.60	2.15	1.20	2.25	3.25
5	⅞	.90	1.75	2.25	1.25	2.35	3.50
6	1	1.10	2.00	2.90	1.50	2.85	4.40
7	1⅛	1.30	2.40	3.50	1.70	3.35	5.00
8	1¼	1.65	2.85	4.25	2.25	4.15	6.00
9	1¼	1.85	3.40	4.75	2 50	4.70	7.25
10	1⅜	2.75	4.50	6.25	3.50	6.00	8.50
11	1⅜	4.45	7 50	10.65	5.30	9.20	13.20
12	1½						
13	1½	7.00	10.50	15.00	8.15	12.80	18.45
14	1¾						
15	1¾	8.00	13.00	18.00	9.25	15.50	21.75
16	1⅞	10.00	15.00	22.00	11.50	18.00	26.50

Inside Iron-Strapped Blocks, Wide Mortise and Extra Heavy. With anything except Loose Swivel Hooks.

Size.	Mortise.	Iron Bushed. Single	Iron Bushed. Double.	Iron Bushed. Triple.	Roller Bushed. Single.	Roller Bushed. Double.	Roller Bushed. Triple.
7	1¼	$2.25	$4.00	$5.50	$3.00	$5.50	$7.75
8	1⅜	2.75	4.50	6.30	3.50	6.00	8.55
9	1½	3.15	5.25	7.25	4.00	6.95	9.80
10	1⅝	4.00	6.50	8.50	5.25	9.00	12.25
12	1¾	5.25	8.50	12 50	6.50	11.00	16.25
14	2	8.00	13.00	17.00	9.75	16.50	22.25
16	2¼	11.50	18.00	28.00	14.00	23.00	35.50
18	2½	15.00	29.00	42.00	18.00	35.00	52.00
20	3	21.00	37.00	54.00	25.00	45.00	65.00
22	3½	26.00	48.00	70.00	.....	.....	.....
24	4	32.00	56.00	84.00	.....	.....	.....

Net List for Galvanizing Block Straps.—Price per Each Block.

Size.	Single.	Double.	Triple.
3	$0.04	$0.06	$0.10
3½	.04	.06	.10
4	.05	.07	.11
5	.06	.08	.12
6	.10	.12	.15
7	.12	.15	.18
8	.16	.21	.30
9	.22	.28	.38
10	.28	.38	.50
11	.35	.45	.60
12			
13	.55	.75	1.00
14			
15	.75	.95	1.25
16	.85	1.20	1.50

Lignum-Vitæ Yacht Blocks, with Galvanized-Iron Straps.

Size.	Plain Galvanized Sheaves. Single.	Plain Galvanized Sheaves. Double.	Roller-Bushed Galvanized or Plain Composition Sheaves. Single.	Roller-Bushed Galvanized or Plain Composition Sheaves. Double.	Roller-Bushed Composition Sheaves. Single.	Roller-Bushed Composition Sheaves. Double.
3	$0.95	$1.50	$1.30	$2.20	$1.50	$2.60
3½	1.00	1.65	1.40	2.35	1.60	2.75
4	1.05	1.75	1.50	2.50	1.75	3.00
4½	1.10	1.90	1.60	2.75	1.85	3.25
5	1.20	2.00	1.75	3.00	2.10	3.70

Inside Iron-Strapped Hoisting Blocks, Stiff Swivel Hooks. Composition Self-Lubricating Bushed.

Size.	Single.	Size.	Single.
10	$6.00	16	$15.00
12	8.50	18	20.00
14	11 00	20	25.00
15	13.00		

Snatch Blocks.

Size.	6	7	8	9	10	12	14
Price.	$0.20	.25	.35	.40	.65	.90	1.20

Iron-Strapped Snatch Blocks, Iron Bushed.

Size.	6	7	8	9	10	12
Price.	$4.00	4.75	5.75	6.75	8.50	10.00
Size.	14	16	18	20	22	24
Price.	$13.00	17.00	25.00	38.00	55.00	70.00

Inside Iron-Strapped Blocks. (Ordinary Mortise.) With anything except Loose Swivel Hooks and Swivel Jaws. Composition Self-Lubricating Bushed.

Size.	Mortise.	Single.	Double.	Triple.
4	11-16	$1.50	$2.90	$4.15
5	⅞	1.75	3.35	4.75
6	1	2.20	4.00	5.80
7	1¼	2.50	4.50	6.70
8	1¼	3.25	5.70	8.50
9	1¼	3.70	6.75	10.00
10	1⅜	4.75	8.50	12.50
11	1⅜	6.75	12.50	18.50
12	1½			
13	1½	9.75	17.00	25.00
14	1¾			
15	1¾	11.00	19.50	28.50

Inside Iron-Strapped Blocks, Wide Mortise and Extra Heavy, with anything except Loose Swivel Hooks. Composition Self-Lubricating Bushed.

Size.	Mortise.	Single.	Double.	Triple.
7	1¼	$4.50	$8.00	$11.50
8	1⅜	5.00	9.00	13.00
9	1½	5.75	10.50	15.00
10	1⅝	7.25	13.50	19.00
12	1¾	9.25	17.00	25.00
14	2	13.00	23.50	33.00
16	2¼	18.00	32.00	48.00
18	2½	23.00	44.00	63.00
20	3	32.00	54.00	77.00
22	3½	38.00	70.00	100.00
24	4	46.00	85.00	125.00

Miscellaneous Prices.

The Skinner Chuck Company, New Britain, Conn., quote the following prices on their Chucks:

	Discount.
Patent Drill Chucks	30 %
Patent Independent Lathe Chucks	40 %
Patent Combination Chuck, new model	40 %

These goods are fully described in their neatly-printed and fully-illustrated catalogue.

Another improvement in the prices of Bright Wire Goods is to be noticed, the goods being now advanced fully 10 per cent. beyond the prices at which they have recently been selling, and are now quoted at discount 87½ per cent. The very low figures at which these goods have been for some time offering justifies this advance, which, we are advised, is made by all the leading manufacturers.

Export Business.

The condition of the export trade generally may be considered satisfactory in South Africa and the Australian colonies. The situation of the present time is briefly explained. In the former country the success of the diamond mines has greatly stimulated shipments, and a heavy business has been the result It has the appearance of something better than an unnatural boom. Manifests of vessels clearing for ports in South Africa show large shipments of Lumber, Doors, Sashes, Plows, Edge Tools, Canned Goods, &c., and exporters seem to be satisfied with the present outlook for continued prosperity in that field.

In Australia the business has been heavy during the last two years, perhaps never better, but a relapse has occurred in Victoria and New South Wales owing to poor crops and overloading by importers. Large stocks are now held by all classes of merchants, and they have been curtailing their orders to this country since the 1st of January to a considerable degree. The collapse of the land boom in Melbourne created considerable anxiety for a time, but no failures of consequence, with one exception, are yet reported. New Zealand is at present doing well. Good crops have improved the condition of af-

fairs, and orders from that market have been very satisfactory. Several merchants are at present in this country from the Australian colonies.

Freights have been rather slow on account of slack orders. This, coupled with high rates charged by the freighters, has a tendency to check free buying.

In the Argentine Republic business has been very good. Large shipments of Agricultural Implements and all classes of American Hardware have been made. How long the present good situation will continue is a matter of conjecture. The country has a grand future, and the trade relations with ours should be encouraged rather than rebuffed. This remark, however, may be considered rather ancient, but, as every exporter knows, it applies to almost every country with which we are now doing any business whatever.

Trade Topics.

Goods exported by American manufacturers are generally satisfactory in quality, manufacturers appreciating the importance of sending out good goods on which reputation can be made in foreign markets, and there is no doubt that the quality and style of American goods exported will compare very favorably with those coming from any other country. Through mistake or otherwise goods of low quality and unsuitable finish may occasionally be exported, but the high character of American manufacturers, as well as their business judgment, makes such instances very rare. We have, however, received from a well-known house in Germany, buying a good many goods in this country, a complaint in regard to the quality of Hickory Handles which have been shipped to them. Omitting the names, what our correspondent says is as follows:

A year ago I bought from ——— a sample lot of Hickory Handles, first quality. This sample lot was satisfactory in every way, and I was very happy to have a good source of supply for this article, especially as it is my principle to sell only the best which can be secured. My former purchases through Bremen and Hamburg importers were not satisfactory. I was induced through the sample lot purchased to give a larger order. When the goods arrived I found, to my greatest regret, that I had been stuck, since three-fourths of the handles of 30 inches and above, instead of consisting of fine white hard stock furnished in the first lot, were ordinary redwood, which my experience has found break very easily. The result is that I cannot sell these goods at all. As in buying direct American articles in good faith I make immediate payment for them, such a method must be condemned the more. Under these circumstances a demand for damages would be without any result whatever, and therefore, in order to protect honest business men against such practices, I have no other means than to bring the matter before the public in this way, and would request you to print this statement.

The question as to the difference in price of goods to the jobbers and the retail trade is one that is constantly perplexing manufacturers, and on which there is apt to be some divergence of view on the part of those interested. That the same question comes up in Canada is indicated by an article in our esteemed contemporary, *Hardware*, in which it is stated that at a late meeting of the Hardware section of the Toronto Board of Trade a resolution was adopted instructing the secretary to communicate with certain manufacturers named, both of whom are engaged in making Shelf Hardware which is sold largely to retailers, with a view to arranging some better discount for the large trade. The following statement is made in regard to the matter:

Under the existing arrangement one class of retailers is sold to at list prices, and another class at 5 per cent. discount, while the wholesaler only receives 12½ per cent., thus leaving him a margin on the goods he sells of only 7½ per cent. What the wholesalers now want is 15 per cent. discount, and no concession to any class of the retail trade. The question is likely to be pushed by those interested, with what effect remains to be seen.

A good deal of care has to be exercised by manufacturers, or associations of manufacturers, in cases where lower prices are given for export than for domestic trade, as ingenious and unscrupulous buyers will sometimes endeavor to obtain the lower figures for the home market. There have been instances in which goods have been sold to Canadian purchasers at especially low prices, on the ground that entering Canada they have to pay a high duty. The goods thus purchased, however, instead of reaching their destination, have been sent to the purchaser's agent at Supension Bridge, or else when shipped direct to the Canadian point have not been taken out of bond, but reshipped in bond to Suspension Bridge, and then sold to American merchants. In such a practice only houses without character on either side of the line would participate, but in a number of instances, we regret to say, this scheme has been carried out. In order to guard against it manufacturers in entering into combinations or making any agreement in regard to prices should make combination price apply to Canada as well as this country.

What the Trade Think of Prices.

An important factor in determining the tone of the market is the opinion of the trade in regard to prices, it being very well known that frequently the trade, more or less generally, are pervaded by a certain confidence that prices are firm and will advance, or at other times become suspicious of prices and regard them as likely to decline. In the one case business is materially stimulated, and in the other it is repressed, the conviction, for which there is often very little ground, tending directly to bring about the condition of things toward which it points. This being the case, it is nearly as important for those who would have light on the business situation to know what the trade think about prices as it is to be advised as to their actual weakness or strength. In expressing their opinion upon trade matters this is a point on which our correspondents often touch, referring sometimes to prices in a particular line, and at others to prices in general. In a number of letters recently received this matter is touched upon many of our correspondents in connection with references to the business situation and other matters related to the trade. These letters represent every section of the country, and are from retail as well as wholesale merchants, whose business varies in extent from that of the village Hardware store to the largest jobbers in the great cities. The opinions expressed accordingly represent those of the trade at large, so that the manufacturer or merchant may from them receive accurate advices in regard to the feeling of the trade as to prices. It will be seen that many varying opinions are thus expressed, and it is interesting to note the different ways in which the trade regard the matter.

Michigan.—Prices as they are ranging at present are good, and if maintained will afford a good per cent. profit.

Connecticut.—The general tone of the market is, we think, for lower prices. Competition and the bringing together of the manufacturer and consumer are gradually reducing prices.

Maine.—The general tone of the market is good, and there is little cutting in prices. Goods generally are being sold at small advance from cost.

New York.—Prices are low and going lower every week. Bottom has not been touched yet, and don't know as it ever will be. General market is lower than ever known in Hardware.

Michigan.—The tendency is downward. There is a general feeling that goods must be sold very close, and, by the way, they are down to rock bottom.

Iowa.—Prices are unsteady, with a tendency to cut on leading lines.

Wisconsin.—The general tone of prices is healthy, as all parties are satisfied that we are at the bottom.

Pennsylvania.—There is a disposition on the part of a few (as there always is) to disturb matters by some extremely low prices. No more so than usual, however.

Tennessee.—Prices have been low, but sales have more than made up the difference in prices.

Alabama.—The disposition is to obtain a fair margin in profits, but this depends upon the desire of competing points to cut, which, we regret to say, is very frequently done.

Iowa.—The feeling is that prices will soon take an upward turn.

Kansas.—Prices are low. Some jobbers are cutting for trade.

Connecticut.—There seems to be no confidence that prices will be any higher. The tendency seems to be downward on nearly all Hardware lines, and in buying we do not know but we are paying more than a neighbor.

Michigan.—Good buyers can almost make their own prices, and stocks are, therefore, well up.

Ohio.—Goods are too cheap. Deception is practiced all along the line.

Ohio.—Outside of Screws and a very few other articles there seems to be no effort made to advance prices. On the contrary, there is a downward tendency in several lines.

Connecticut.—Dealers want lower and lower prices, until with competition there is nothing left to manufacturer.

Michigan.—We have been looking for advances in some lines of heavy goods, but think now there is not much prospect of same before July or August.

Indiana.—There has been some cutting in prices by those anxious to reduce stock, but generally prices have been fairly maintained.

Maine.—Everybody seems anxious to get a better profit than last year, and is holding his goods rather than give them away.

Kentucky.—The market is dragging singularly, in view of the volume of business being done.

Rhode Island.—Prices have been much cut up since January 1. Unusual anxiety to sell noticed on part of manufacturers and jobbers.

Vermont.—Almost every article we buy shows a weak market with downward tendency.

Indiana.—Competition keener than ever, and consequently profits are very small. Prices have a downward tendency.

Iowa.—General tone of the market is downward on Hardware and Iron Goods. Iron and Steel Goods certainly as low, if not lower, than they should be, but supply as yet seems to exceed demand, and supply and demand always have and always will regulate prices.

Massachusetts.—We manage to sell close and make up in volume of business instead of getting high prices.

South Carolina.—We are being forced to sell goods at retail at a very small margin, though there is a growing demand for the better class of goods.

Minnesota.—Prices have been thus far much depressed. Salesmen are inclined to cut, thinking that demand will improve after season has fairly opened.

Wisconsin.—Prices are low. All goods, owing to excessive competition and close proximity of large towns, are sold at small margins. Chicago and Milwaukee jobbers solicit builders' business.

Iowa.—There is a very general feeling that prices are already as low as they can go, but at the same time there is very little confidence in prices of Hardware advancing in the near future.

Illinois.—Staples are sold on as close margins as we have ever known, but the profit on other goods is better than usual.

Alabama.—Prices are cut to the smallest margin possible.

Iowa.—All being eager to do business, profits are often foregone. This is the most unfavorable feature of the Hardware business.

California.—There has been considerable of a decrease in prices, but at present the tendency is toward a slight advance.

Missouri.—Large stocks of Hardware, bought in prospect of a fair demand, have induced low prices on a majority of articles. Cash has it all its own way.

Tennessee.—Prices are low and irregular. Heavy goods appear to be weakening.

Massachusetts.—Competition by manufacturers has caused some feeling. As soon as a party has purchased some one comes along and offers similar goods at a lower price.

Pennsylvania.—General tone is steady, but a little weakening in a few items. Most goods seem to be pretty close to cost.

Iowa.—Manufacturers and jobbers are all anxious to sell, but there is not much cutting on prices.

Illinois.—Prices are satisfactory with the exception of some articles controlled by combination—viz.: Screws, Bolts and Copper Goods.

West Virginia.—Prices are very weak. Little confidence as to the bottom. A gradual growth of skepticism in that direction.

New York.—At present we can see little encouragement to hope for higher prices, while in staple Iron Goods the prospect is not upward by any means.

Minnesota.—Prices are weak. Most any reasonable concession given if it will effect a sale. This results apparently not so much from competition as from fear of a break in prices, or more that a more limited demand than usual will leave them overstocked on goods limited to season.

Ohio.—Prices are being held up closer than for some time by both jobbers and makers of goods, with the exception of some few leading articles, such as Nails, Strap and T Hinges, Wire, &c.

Kansas.—Prices on staple Hardware are tending lower, small trade seeming to cause lower prices.

Minnesota.—Prices in most lines are well maintained, but there is no sign of firmness except in Nails, Barb Wire and Wagon and Carriage Wood stock.

Wisconsin.—Most stable articles are lower than ever known before. This is especially true of Iron and Nails and Barb Wire.

New York—The general tone of the market, we think, is depressed. It would be hard to make sales at advanced prices.

Minnesota.—Prices are steady, and there is a hopeful feeling that they have reached bottom, and that we are on the eve of more prosperous times.

West Virginia.—Prices are lower than they were at this time last year, though advances lately made are firmly held and show no tendency to cut.

Kansas.—Prices are lower than ever known in the retail trade here.

Indiana.—Very few lines of goods are held firm. We think there is a greater effort made in allowing "special concessions" to move goods than at any time for many years. Quantity secures low prices.

Maryland.—We can hardly believe it possible for lower figures to be reached than now prevail, except it be with such goods as are held in combination or pools.

Illinois.—Prices are too weak. Margins too close for size of trade. Profits are given to the class that does not appreciate them.

Kansas.—While prices are not demoralized, good values can be got of reliable houses. Desirable customers are no doubt able to get goods under the general market.

Nebraska.—Locally there is no indication of demoralization in prices. The breaking down in prices usually follows overstocking of manufacturers or dealers.

Nebraska.—Prices as a rule are holding their own. Changes are few and nominal and usually in the direction of lower prices.

New York.—On many heavy and leading goods sold largely at this season prices are very low, and the general tone of the market indicates that values will rule low this year; hence, buyers are not anticipating their wants as much as heretofore by placing orders in advance.

Dakota.—Prices are not as good as usual. Merchants are so anxious to sell that many cut the bottom out of prices.

North Carolina.—Prices are very close. Margins are small on leading goods.

Missouri.—The tone of the market as regards prices is very discouraging, but as it has been getting worse from year to year for a long time we have almost ceased to grumble.

Florida.—Prices have been very good, but there has been some cutting on staple goods.

Colorado.—Have looked for prices to advance, but have now no faith in same.

California.—Prices are very low, Eastern competition being such that goods are sold at close margin by jobbers.

Colorado.—Some dealers being overstocked on Barb Wire, Nails and other heavy goods are cutting prices for cash sales, though prices in general are moderately firm.

Maine.—Prices are a good deal cut up, and the lower they go the harder it is to sell at fair profits. We regard prices as unsatisfactory on the whole.

Illinois.—Prices are at present weak, but think we can see indications of its bettering before fall.

Pennsylvania.—Prices are low, low, very low. We believe a little firmness in price would encourage everybody, manufacturers as well as dealers, and would stimulate trade now only waiting for some impetus of the kind.

Iowa.—Prices are very low and we see no prospect for any advances. We notice jobbers' prices on the Mississippi River are very nearly the same as New York jobbers' prices, especially on staple goods.

Items.

The strength of the eight-hour day movement is shown by the adoption by the Illinois Legislature of an amendment to the ship-canal bill, making eight hours a day's work in the construction of the proposed water-way between Lake Michigan and the Mississippi River. The amendment was adopted in the State Senate by an overwhelming vote, only two names being recorded in opposition to it. It seems to be the purpose of the labor leaders to compel in every way the recognition of eight hours as a legal day's work. In the city of Chicago eight hours has constituted a day's work on all public work for sometime past by ordinance of the City Council.

The well-known Chicago Hardware House of Kellogg, Johnson & Bliss has undergone a reorganization during the past week. Messrs. Kellogg & Johnson have retired from the company, and their stock has been transferred to Bullard & Gormley, who have for several years past conducted a Hardware store at 106 Lake street. The stock of Bullard & Gormley will be removed to Kellogg, Johnson & Bliss' store, at 108 and 110 Randolph street. The corporate name will be retained by the new company for the present, with Bliss, Bullard & Gormley as managers. This is a very important consolidation of Hardware interests in Chicago, as these two houses have been competing with each other in precisely the same line of trade—namely, Builders' Hardware and Mechanics' Tools. They, of course, carried a general line of Hardware, but made a specialty of the branches mentioned. The stock of the new house will be very large, and will probably exceed that of any other retail Hardware house in the West.

The leading Hardware and Iron and Steel houses of Chicago will, as usual, close their places of business at 1 o'clock on Saturday hereafter until August 31. The Saturday half-holiday during the summer now seems to have established itself as a permanent institution among the business houses of that city.

Announcement is made by the Cleveland City Forge and Iron Company, the Avery Stamping Company, the Chapman Jack Company and the Bronson Supply Company, all of Cleveland, Ohio, that owing to the large extension of their business in the South they have established a special agency for the South for their different lines of goods in the Neal Building, Baltimore, Md., with Alfred Ely as manager.

Lake Erie Iron Company, Cleveland, Ohio, have made an arrangement with Surpless, Dunn & Alder, 97 Chambers street, New York, by which they will represent their interests in the East and South, and will solicit orders on their account, quoting as low prices as the home office. The Iowa Barb Wire Company also have appointed Surpless, Dunn & Alder, 97 Chambers street, New York, their agents for Southern and export trade.

Simmons Hardware Company, St. Louis, Mo., have purchased the stock and good-will of Caruth & Byrnes Hardware Company, of the same city. The negotiations for the sale have been carried on for some time past, but in such a quiet manner that the announcement was a complete surprise to the trade. The transfer was made on Monday, the 20th inst.

Thomas S. Krall, Lebanon, Pa., has invented and is about to manufacture a Spring to be put on a single-tree, so that the trace cannot slip off. It is a contrivance made of spring brass wire, the two arms of which are inserted in the hole in the single-tree, making a simple and apparently secure contrivance for the purpose indicated. Two patterns of this Spring are made. When desired the Spring may be attached to the single-tree by a small chain, or its form is such as to permit its being easily carried in the pocket.

The decision of the Circuit Court of the United States, Eastern District of Pennsylvania, in the case against Paine, Diehl & Co., for infringements of the patents on the Henis Fruit and Vegetable Press, owned by the C. F. Henis Company, is to the effect that the defendants have violated and infringed the first and third claims of the patent, and an injunction is granted against making, using or selling the goods thus infringing. The amount of damages sustained is left to the decision of a referee.

C. J. Bailey & Co., 132 Pearl street, Boston, Mass., whose Rubber Dauber is described on page 791, issue circulars describing a variety of Rubber Brushes, including Bath, Flesh- Tooth and Hand Brushes, &c., Pen-Holders, Pant Guards, Erasers and other goods, all of which are more or less closely constructed on the same principle as the Dauber.

The trade will note with interest the advertisement of the Shepard Hardware Company, Buffalo, N. Y., in which the merits of their Lightning Freezers are enumerated with a unique setting.

Wells Bros. & Co., Greenfield, Mass., advise us that they have accepted the exclusive sale of the well-known Stratton Bros. Improved Spirit Levels. These Levels have been on the market for more than 20 years, and are referred to as occupying a high place. Catalogues and quotations will be furnished the trade upon application to Wells Bros. & Co.

O. W. Graves, 19 Cliff street, New York, agent for the American Brass Kettle manufacturers, issues a circular in which the new line of Tinned Inside Kettles, to which we referred in our last issue, are represented, specific information being given of the sizes, weight and capacity. The regular goods are also similarly described.

We are informed that W. G. Avery, president of the W. G. Avery Mfg. Company, Cleveland, Ohio, and inventor of the Seamless Elevator Buckets and Troughs, contemplates soon putting on the market his new Cattle and Horse Troughs. These Troughs are referred to as a decided improvement over the ordinary ones now in use, and are claimed to be equal, if not superior, to the seamless ones.

Columbiana Pump and Machine Company, Columbiana, Ohio, have issued a comprehensive and convenient catalogue, which represents their large and increasing line of Force and Lift Pumps, as well as other specialties of their manufacture. In their opening circular they refer gracefully to the patronage they have received, and allude also to the quality of their goods and their purpose to incorporate improvements from time to time. Very satisfactory descriptions are given of the different Pumps, with list prices and other information which will be of service to the trade.

Wire Goods Company, Worcester, Mass., issue new pages for their catalogue describing recent additions to their line, including Dog and Halter Chains, Handled Pot Chains, Cake Coolers, Portable Pie Rack, Fishing Hook Attachments, Hooks of different kinds and the patent Take-up Twine-Box.

R. Wallace & Sons Mfg. Company, with factories at Wallingford, Conn., have established a salesroom at 104 State street, Chicago, Ill., under the management of O. F. Bridges. They will carry a complete line of the company's goods, adding frequently the latest productions in Silver and other metals, so that their stock will represent the most recent and artistic efforts in this line.

Cordley & Hayes, 173 Duane street, New York, agents for the sale of Monroe Bros'. Refrigerators, state that the fire at the factory last week damaged only the woodworking department, the total loss being estimated at $20,000. Their stock of Refrigerators and a lot coming through were

not injured, so that they are able to fill orders promptly. On two or three sizes they were low, but have arranged for the cabinet-work to be made for them, and hope to be able to meet all demands. The sale on these goods this season is referred to as beyond expectations, and they are said to be meeting with favor among the best trade.

The American Oil Stove Company, Gardner, Mass., issue a catalogue for 1889, which they claim illustrates a still better and more complete line of Oil Stoves and Lamps than that of 1888. The company state that for a number of years past they have felt the need of better distributing facilities, and announce to the New England trade that they have opened an office at 9 Broomfield street, Boston, where they will carry a full stock of Stoves. The catalogue consists of something over 30 pages of letter-press, profusely illustrated with their leading specialties. Among the latter we find what the company are pleased to term a Lamp Stove Range. It presents very much the appearance of a Vapor Stove, but is made up of a number of Lamp Stoves placed upon a frame in such a way that their tops practically coincide with what would be the top surface of a Vapor Stove. The range is made in sections about 12 inches square, is provided with castors and finished in japan and nickel.

Important Business Changes.

The Trenton Vise and Tool Works, for the past 30 years established in Trenton, N. J., and owned solely by Hermann Boker & Co., of New York, has been organized as a stock company. Herman Funke, Sr., of Hermann Boker & Co., New York, is president, and David W. Van Tine, of G. W. Van Tine & Son, of Philadelphia, is secretary and treasurer. During the past three weeks the works have been closed, in order that extensive alterations and improvements, made necessary by largely-increased business, might be made. These changes are now completed, and the new company assure their friends that they will soon be able to execute all orders with prompt dispatch. The special products of this company are Solid Box Vises, all kinds of Parallel Swivel and Coach Vises, Picks, Mattocks, Hoes, Hammers, Sledges, Tongs, Pincers, and similar goods, which have quite an extended reputation for superior excellence, and the new management advise us that they propose to keep up the high standard already attained, and if possible to improve it. The Trenton Vise and Tool Works emphasise the quality of their Solid Box Vises, and say that no effort will be spared to maintain the high reputation that their goods have enjoyed for a quarter of a century. As heretofore, the sale of the product of this company will be through Hermann Boker & Co., of New York, and G. W. Van Tine & Son, of Philadelphia.

An important change has taken place in the John Russell Cutlery Company, Turners Falls, Mass. Richard N. Oakman, Jr., who for the past 15 years has been treasurer and manager of the company, has disposed of his stock to W. P. Dustin and will retire from the management at the annual meeting in July. It is understood that for the present, at least, Mr. Oakman will continue manager of the Lamson & Goodnow Mfg. Company, Shelburne Falls. His management of the John Russell Cutlery Company is generally regarded as having been exceptionally skillful and succ ssful. This change, together with that noted below in the firm of Landers, Frary & Clark, is not regarded as likely to result in weakening the arrangement between the manufacturers, but is interpreted generally as likely to tend toward the continuance and strengthening of the close relations already existing. Mr. Dustin, of the John Russell Cutlery Company, and Mr. Landers, of Landers, Frary & Clark, while sharp competitors, understand thoroughly the art of pulling together when desired, and any demoralization of prices is not anticipated. The understanding which has existed among the manufacturers is regarded by the trade as desirable, as by it prices, while kept above the unprofitable level to which they fell during the intense and unrestrained competition, are also kept at a moderate figure and not unreasonably high.

At a meeting of the Board of Directors of Landers, Frary & Clark, New Britain, Conn., held on May 6, J. A. Pickett, who has been president of the company since the retirement of J. D. Frary, in 1875, tendered his resignation, which was accepted, and Hon. Francis B. Cooley, of Hartford, was chosen president for the unexpired term.

Exports.

PER BRIG RAPID, MAY 8, 1889, FOR PORT NATAL, SOUTH AFRICA.

By Arkell & Douglas.—6 crates Stoves, 2 cases Nails, 1 crate Handles, 6 cases Hardware, 13 bundles Wash-Boards, 6 dozen Tools, 15 cases Plows, 1 case Brooms, 6 cases Plows, 6 cases Agricultural Implements, 12 dozen Handles, 20 boxes Clothes-Pins, 1 case Brooms, 12 cases Agricultural Implements, ½ dozen Wringers, 4 crates Ranges, 4 cases Stove-Ware, 14 cases Tools, 8 dozen Saws, 6 dozen Hammers, 8 dozen Shelf Brackets, 6 crates Sad-Irons, 5 cases Hardware, 10 boxes Shade Rollers, 25 cases Plows.

FOR EAST LONDON.

By Arkell & Douglas.—12 cases Scales, 1 case Blacking, 1 case Hardware, 4 cases Miter Boxes, 1 case Razors, 1 case Hardware, 1 keg Braces, 295 kegs Nails, 84 cases Agricultural Implements, 13 cases Axes, 2 cases Brooms, 1 bundle Sash Cord, 6360 pounds Sash Weights, 13 packages Lamp Goods.

PER SHIP GRANITE STATE, MAY 11, 1889.

FOR SYDNEY, N. S. W.

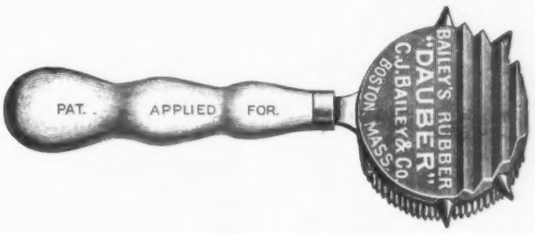
By Simpson, Hall, Miller & Co.—6 cases Silver-Plated Ware.
By H. S. Chipman.—1 crate Churns, 1 Step-ladder.
By E. K. Alburtis.—10 gross Blacking, 1 case Hardware.
By McCoy & Sanders.—34 dozen Handles, 1 Planer, 1 Cutting Machine.
By Healy & Earl—4 boxes Sawmills, 2 Stationary Engines, 6 boxes Steam Pumps, 4 cases Saws, 1 case Wood-Working Machinery, 2 packages Die Plates.
By Coombs, Crosby & Eddy.—1318 Blocks, 500 pieces Tin-Ware, ¼ gross Traps, 2 dozen Lamp Goods, 5 dozen Axes, 20 gross Blacking, 126 Velocipedes.
By Illsley, Doubleday & Co.—12½ gross Axles, 12½ gross Axle Grease, 7½ gross Axle Grease, 224 pounds Glue, 6¼ gross Axle Grease, 16 dozen Horse Brushes, 8 dozen Hardware, 5 gross Glass Cutters.
By Strong & Trowbridge.—2 packages Carpenters' Tools, 12 cases Axes, 3 cases Hatchets, 66,000 Cartridges and Primers, 3 cases Rifles, 3 packages Grindstone Parts, 2 cases Plated-Ware, 1 case Tin-Ware, 1 case Wire Goods, 1 case Tools, 13 crates Barrow Parts, 2 cases Corn Mills, 5 cases Handles, 5 cases Carpenters' Tools, 1 case Tinners' Tools, 1 case Hardware, 1 case Screw-Drivers, 10 packages Pumps, 2 cases Broom Handles, 4 cases Bolts, 1 case Rakes, 1 case Tools.
By Morris, Strouse & Co.—24 dozen Oil Cans, 2 dozen Hat-Racks, 250 cases Clothes-Pins, 200 cases Clothes-Pins, 28 dozen Carpenters' Tools, ½ dozen Sad-Irons, 22 dozen Knives, 7 dozen Coopers' Tools, 25 dozen Saws, 190 pounds Oil-Stone, 20 dozen Hammers.
By McLean Bros. & Rigg.—3 Miter Boxes, 12 Scales, 10 Pumps, 12 Gate Latches, 4 cases Wire Goods, 24 sets Axles, 6 dozen Oilers, 12 dozen Handles, 2 dozen Cork Pullers, 3 dozen Braces, 6 dozen Augers, 18 dozen Hoes, 12 dozen Parers and Corers, 30 bundles Carriage-Ware, 20 dozen Axes, 6 cases Agate-Ware, 6 dozen Bird Cages, 36 dozen Lemon-Squeezers, 24 dozen Curry-Combs, 66 dozen Handles, 56 Ice-Cream Freezers, 1 case Agate-Ware, 30 Refrigerators, 19 Pumps, 60 Ladders, 26 dozen Locks, 20,000 Cartridges, 12 dozen Hammers, 9 cases Fire-Arms, 18 Wringers, 4¼ dozen Meat-Choppers, 3 cases Wire Goods, 20,000 Bolts, 3 dozen Miter-Boxes, 2 dozen Lanterns.
By Rogers, Smith & Co—9 packages Plated-Ware.
By Lazarus & Rosenfeld.—120 dozen Axe-Handles, 38 dozen Handles.
By W. K. Freeman.—18 Rifles, 4000 Cartridges, 12 sets Tools.
By Nevius & Haviland.—23 cases Spring Shade Rollers.
By Welsh & Lea.—8 cases Iron Bolts.
By Manhattan Brass Company.—9 cases Burners.
By E. K. Alburtis.—37 pairs Springs, 20 pairs Rims.
By F. B. Wheeler & Co.—5 cases Hardware.
By W. & B. Douglas.—101 Pumps.
By Bradley & Hubbard Mfg. Company.—29 packages Lamp Goods.
By Waterbury Clock Company.—21 boxes Clocks, 15 cases Clocks, 13 cases Clocks.
By B. F. Avery & Sons.—2910 pounds Plow Parts.
By Ansonia Clock Company.—25 boxes Clocks, 19 boxes Clocks.
By Edward Miller & Co.—16 packages Lamp Goods.
By A. S. Lascelles & Co.—1 case Wrenches.
By H. W. Peabody & Co.—59 dozen Wash-Boards, 24 dozen Brooms, 34 dozen Handles, 12 dozen Handles.
By R. W. Forbes & Son.—2 packages Agricultural Implements, 38 packages Wagons and Parts, 96 packages Sewing-Machines, 3 cases Pumps.
By A. Field & Co.—10 dozen Axes, 8 dozen Tools, 10 dozen Hammers, 2 dozen Tools, 12 dozen Handles, 25 boxes Clothes-Pins, 6 dozen Washboards, 120 dozen handles, 6 dozen Harness-Ware, 12 dozen Rat Traps, 3 cases Harness-Ware.
By V. Basanta.—9 dozen Sieves, 21 dozen Thermometers, 9 sets Saddlery, 62 dozen Handles, 30 dozen Wrenches, 100 gross Paper Caps, 3 gross Toy Pistols.
By Arkell & Douglas.—80 dozen Tools, 1 case Brooms, 24 boxes Fruit Jars, 1 case Tin-ware, 17 boxes Tools, 2 cases Handles, 18 cases Edge Tools, 9 cases Chimneys, 1 case Traps, 10 cases Axles, 24 cases Carriage-ware, 55 bundles Rims, 10 bundles Shellers, 12 cases Bolts, 43 cases Edge Tools, 1 case Saw Sets.
By Arnold, Cheny & Co.—1 barrel Twine, 5 cases Plows, 8 cases Brooms, 105 cases Handles, 2 cases Wagons, 1 case Gearing and Wheels, 1 case Buckboards, 1 case Harness, 6 cases Carriage Hardware, 91,791 pieces Roofing Slate, 5 cases Axles, 1 case Saddlery Hardware, 21 packages Carriage-Ware.
By W. H. Crossman & Bro.—54 dozen Handles, 6 dozen Lemon Squeezers, 12 dozen Lemon Squeezers, 5 dozen Bush Hooks, 6 dozen Grindstone Fixtures, 24 dozen Mouse-Traps, 14 cases Hardware, 10 Rifles, 40 sets Tools, 50,000 Primers, 12,000 Metallic Cartridges, 1000 Handles, ½ dozen Bells, 7 cases Hardware, 25 dozen Axes, 33 dozen Brushes, 5 cases Hardware, 5 cases Hardware, 1 dozen Vises, 1310 pounds Iron Bolts, 80 dozen Handles, 1000 Handles, 5 dozen Iron Rails, 36 dozen Mouse Traps, 2 cases Hardware, 6 dozen Wringers, 2½ dozen Corn Mills, 60 dozen Fruit Jars, 100 dozen Polish, 24 dozen Cotton Hooks, 24 dozen Lemon Squeezers, 3 dozen Carpet Sweepers, 84 dozen Fruit Jars, ½ dozen Tobacco Cutters, 1 case Hardware, 1 cask Plow Parts, 25 Clocks 2 dozen Meat Choppers, 400 pounds Nails, 4 dozen Hammers, 1 box Hardware, 1 case Hardware, 1 case Hardware, 20 Handles, 1 gross Brushes, 2000 Handles, 5 cases Metallic Cartridges, 1½ dozen Lawn Mowers, 21 cases Fruit Jars, 3 cases Hardware, 18 dozen Locks, 10 Pistols, 5 cases Carriage-Ware, 46 bundles Carriage-Ware.

PER BARK NANNY, MAY 13, 1889, FOR DUNEDIN, NEW ZEALAND.

By Welsh & Lea.—5 cases Saws.
By Edward Miller & Co.—14 packages Lamp Goods, 11 packages Lamp Goods, 6 packages Lamp Goods, 50 packages Lamp Goods.
By R. W. Forbes & Son.—3 packages Hardware, 1 box Toy Banks, 10 dozen Snaths, 10 dozen Hay Rakes, 6 packages Churns, 33 dozen Tool Handles, 4 dozen Hatchets, 27 dozen Fork Handles, 3 dozen Manure Forks, 1 dozen Wringers, 11 cases Meat Choppers, 11,310 pounds Barb Wire, 120 dozen Axe Handles.
By Chas. Brewer & Co.—16 cases Handles, 13 cases Tools, 9 cases Agricultural Implements, 12 cases Hardware, 2300 pounds Horse Nails, 1 bale Rubber, 2 cases Clocks, 2 packages Lamp-Ware, 4 cases and 11 kegs Axle Grease, 24 bundles Wash Boards, 3⅓ barrels and 16 kegs Axle Grease, 10 crates Stoves.
By H. W. Peabody & Co.—201 packages Agricultural Machines, 2 packages Hardware, 1 case Lamp-Ware, 2 bales Hammocks, 9 cases Hardware, 7 cases Axles and Springs, 18 packages Carriage-Ware, 1 case Plated-Ware, 2 cases Bolts and Nuts, 12 packages Hardware, 2 cases Pumps, 84 dozen Handles, 1 case Stone, 6 cases Hardware, 3 cases Wringers, 2 dozen Agricultural Implements, 7 packages Lawn Mowers, 1 case Stamped-Ware.

A Rubber Dauber.

C. J. Bailey & Co., Boston, Mass., are manufacturing a dauber which is quite different from those with which the trade are familiar. It is represented in the illustration herewith given. The head is made of rubber, including the part by which the



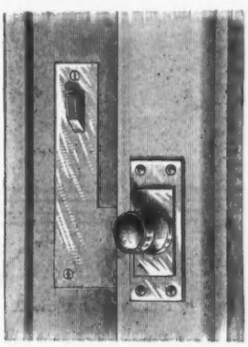
A Rubber Dauber.

blacking is applied, which consists of a large number of rubber bristles or points $\frac{5}{16}$ inch long, constituting a soft, elastic surface, which seems well adapted for the purpose intended. On the edge are projecting spurs for removing the mud, and on the back there are ribs for the same purpose. The head is mounted on brass, by which also it is connected with the handle, which has a brass ferrule. The points made by the manufacturers in regard to this dauber are that it will not clog nor spatter, and that the blacking can be applied accurately, so that in use on a low shoe or a gaiter boot the blacking can be put on without soiling the stocking or the cloth top. It is neatly made and retails for 25 cents.

Dixon's Metal-Workers' Crayon.

Single Sash Lock and Ventilator.

Some time since we presented to our readers several views of a sash lock and ventilator designed to work in connection with a double sash and to hold either or both in any position desired. The very common practice of constructing modern



Single Sash Lock and Ventilator.

buildings, however, with one large sash instead of two has induced the manufacturers, Jenkins & Timby, Oswego, N. Y., and 102 Chambers street, New York City, to put upon the market a sash lock and ventilator specially intended to meet this requirement. In the engraving presented herewith we show a section of window frame with the lock attached, an inspection of which will show its general arrangement. One of the peculiar features of nstr uction to which the manufacturers direct special attention is the mechanism for releasing the sash after it has been automatically locked in place. The spindle of the knob is pivoted at its upper end in such a manner as to allow of a little play within the knob. The opposite end of the spindle is bifurcated for the purpose of receiving the flat bar which actuates the lock shown in the sash groove at the right of the cut. When the device is operated, it is only necessary to move the thumb-nut upward, which gives to the flat bar above referred to a rocking motion, causing the bolt to be depressed, releasing the window sash. The construction is such that the device locks automatically, and when the window is once secured in place it cannot be opened except from the inside. The lock is made in three sizes, the smallest being intended for ordinary windows and dumb-waiter doors. It is carefully constructed of brass, and during the period it has been before the trade, met with a gratifying reception.

Dixon's Metal-Worker's Crayon.

Joseph Dixon Crucible Company, Jersey City, N. J., and 68 Reade street, New York, are putting on the market a soapstone crayon for marking metals, which is illustrated above. This crayon is sawed out of solid soapstone, which is referred to as especially adapted for marking on all dark-colored metals. It is covered with paper lettered as shown in the cut, which represents the crayon full size.

One of the immediate effects of the completion of the Poughkeepsie bridge will be to divert a large share of the coal trade which passes through Philadelphia over the Reading to New England from Port Richmond. It is expected that all of the coal for points in New England not on the seacoast will of necessity go over the bridge by the all-rail route it affords. Within two years it is expected that a road to connect with the bridge system will be built from Slatington across to Harrisburg. This would be practically the completion of the dream of the life of the late Edgar Thomson, president of the Pennsylvania Railroad Company—an air line from the West to Boston. The managers of the bridge system expect that 3,000,000 tons of coal will pass over their line annually, and arrangements have already been completed with nearly all the coal roads for a direct connection.

The contract for the Philadelphia and Reading Railroad's new iron bridge across the Schuylkill River below Manayunk has been given to the Pencoyd Iron Works. The bridge will be about 600 feet long.

Chicago Incased Screen-Door Hinge.

The Chicago Spring Butt Company, Union and Lake streets, Chicago, have brought out a new hinge for screen doors. It has an incased spring. The accompanying illustration shows a face of the spring-hinge and a blank hinge which goes with it, the two constituting a pair of hinges. This hinge has a powerful spring, from the fact that the spring or power is attached to one hinge-leaf and an extended bearing-

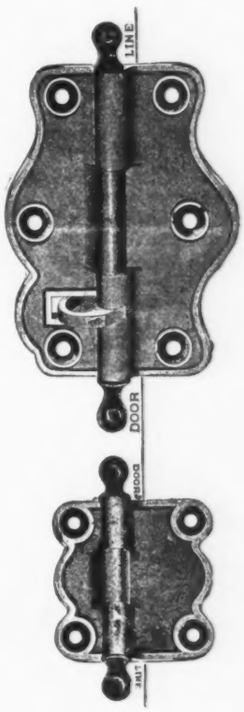


Fig. 1.—Chicago Incased Hold-Back Screen Door Spring Hinge.

plate or lever to the other leaf. As the hinge is closed the spring itself travels toward the outer end of the bearing-plate or lever, increasing its power to operate the door many times over a hinge with a stationary spring and a long arm reaching to the end of the lever or bearing-

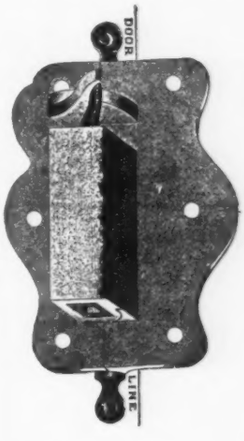
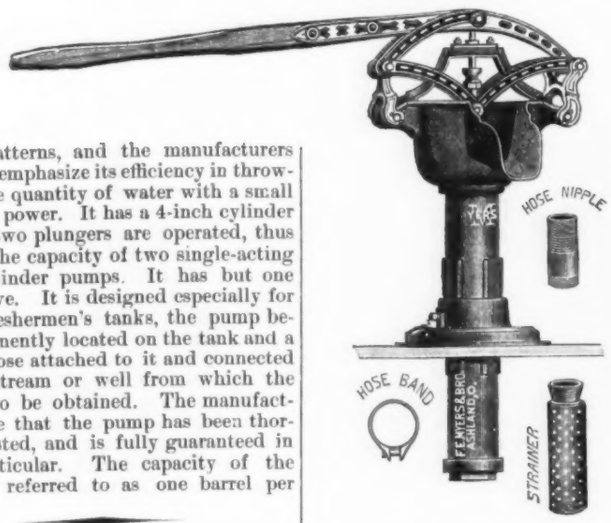


Fig. 2.—Back of Hinge.

plate. The illustration above is a back view of the spring-hinge showing the case for the spring. As most screen doors are hung direct to the casing with no intermediate strips, this hinge is made so that it can be applied by cutting a notch from the door only. It has a plain surface, which can be polished in bronze metal or iron and plated for fine screen doors.

Cyclone Tank Lift-Pump.

This pump is represented in the accompanying illustration, and is manufactured by F. E. Myers & Bro., Ashland, Ohio. Its construction embodies new and improved patterns, and the manufacturers especially emphasize its efficiency in throwing a large quantity of water with a small amount of power. It has a 4-inch cylinder in which two plungers are operated, thus giving it the capacity of two single-acting 4-inch cylinder pumps. It has but one check-valve. It is designed especially for filling threshermen's tanks, the pump being permanently located on the tank and a piece of hose attached to it and connected with the stream or well from which the water is to be obtained. The manufacturers state that the pump has been thoroughly tested, and is fully guaranteed in every particular. The capacity of the pump is referred to as one barrel per minute.



Cyclone Tank Lift Pump.

Soap-Shaker.

The Hamblin & Russell Mfg. Company, Worcester, Mass., are manufacturing the soap-shaker shown in the accompanying illustration. It will be understood that the piece of soap is to be inserted in this

Soap Shaker.

wire bag or pocket, when, by means of the handle, it can be conveniently agitated through the water in the wash-tub for the purpose of making suds.

Greely's Cork-Extractor.

This article, which is represented in the accompanying illustrations, embodies, it will be observed, new features in a cork-extractor. It is represented in Fig. 1, while its use is indicated in Figs. 2 and 3. From these illustrations it will be seen that it consists of a piece of steel bent and handled in the form indicated. There is, however, along the back a groove, which is not clearly shown in the cut, this groove being intended to permit the air to enter the bottle when the extractor is in place, thus overcoming the suction which is encountered in drawing the cork the usual way. As indicated in Figs. 2 and 3, the extractor, the end of which is rounded so as to conform with the inside of the bottle neck, is inserted between the cork and the bottle, and when sufficiently far down the hook on the end is turned into the cork, as shown in Fig. 2, or as in Fig. 3, is placed directly under the end of the cork which may then be extracted. It is obvious that in the use of this article the cork is not as liable to be injured as with the ordinary corkscrew, and it is referred to as doing its work efficiently. These cork-extractors are made in eight different sizes and styles, giving a requisite variety for the different uses for which they may be required.

Fig. 1.—Greely's Cork Extractor.

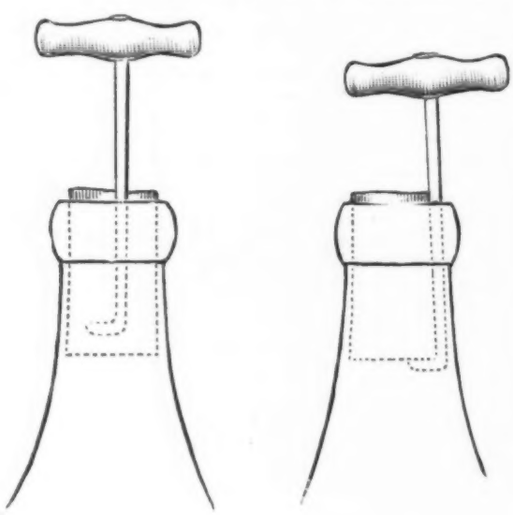


Fig. 2 and 3.—Use of Cork Extractor.

The Leonard Cleanable Refrigerator and Creamer.

This article, which, as its name indicates, is intended to serve both as a refrigerator and a creamer, is made by the Grand Rapids Refrigerator Company, Grand Rapids, Mich. Unlike most other refrigerators, this article is placed with its end against the wall, leaving access to the two sides. One of these, the creamer side, is shown in the accompanying illustration. The other, the refrigerator side, is similar to the usual refrigerators. The interior construction is illustrated in Fig. 2, which gives a sectional view of the arrangement. From this it will be seen that the ice is placed in the middle of the creamer, and comes in contact with the milk-cans shown on the right, these cans being covered with a cloth jacket, which, as the can stands constantly in ice-water, draws the melted ice-water up around the can, producing the same effect, it is claimed, as though the cans were immersed

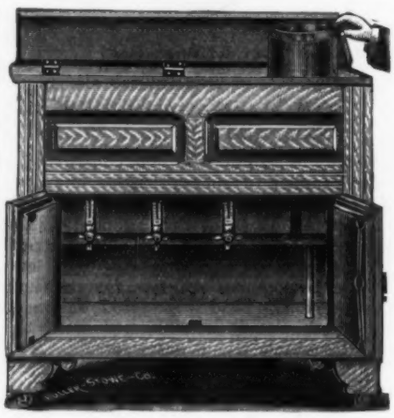


Fig. 1.—Creamer Side of Leonard Cleanable Refrigerator and Creamer.

in water. At the same time the opening in the bottom of the ice compartment permits the cold air to enter the refrigerator, the construction thus adapting this article to its double use. The waste-pipe, by which the water is carried off, is shown in the sectional view. An idea of the dimensions of this refrigerator can be

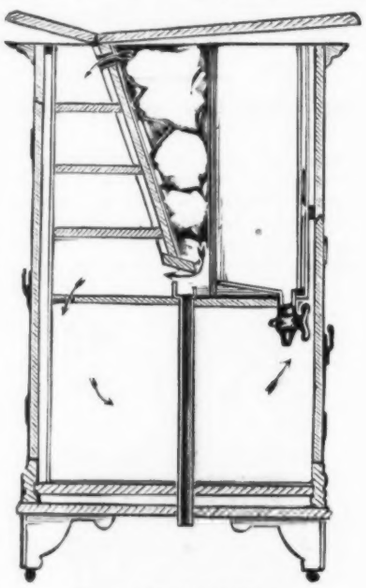


Fig. 2.—Sectional View.

gained from the fact that it stands 3 feet 6 inches high, has a width of 30 inches and length of 48 inches, and holds four 5-gallon milk-cans, 9 inches in diameter and 19 inches high, leaving room, as above explained, for a family refrigerator. One of the points emphasized in regard to this article is that it is, as its name implies, cleanable, as every part can readily be taken out to clean—the milk-cans being lifted out, the cover being entirely removable, the ice-rack sliding out, and the provision-shelves coming out readily, leaving a plain metal-lined box to clean and readily accessible in every part. The cases of the creamers are made of solid ash and finished in

the new antique finish, being two complete boxes one inside of the other, and the packing of non-conducting material between. Then follows a lining of water-proof paper and a lining of zinc, making five walls. As indicated in Fig. 1, the cans skim from the bottom by means of the faucet and the cream gauge shown. A small vial brush is sent out with each creamer to clean the faucets, and the company emphasize the importance of absolute cleanliness in butter-making, and allude to the fact that it is secured by the proper use of this creamer. Another point is that this method of cooling the cans is better than that of sinking them in water as less liable to cause rust holes in the cans. The utility and convenience of the refrigerator are also emphasized. The circular of the company gives also directions for the use of this creamer and refers to other points in regard to it.

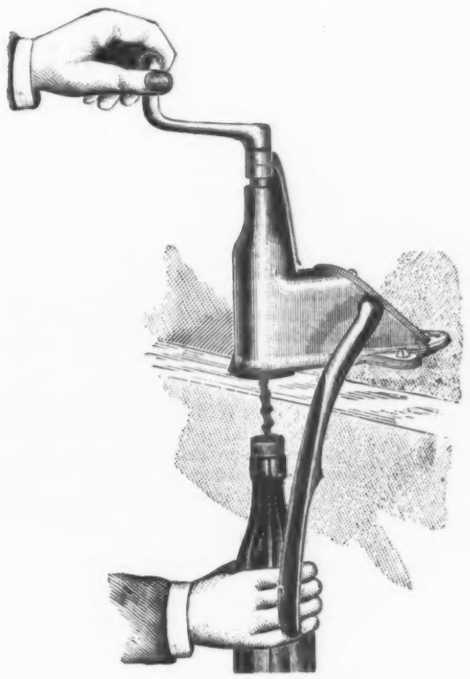


Fig. 1.—Walker's Improved Cork-Puller.

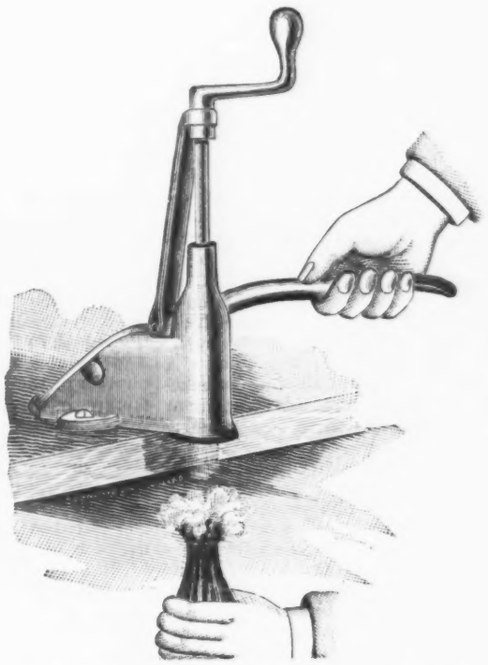
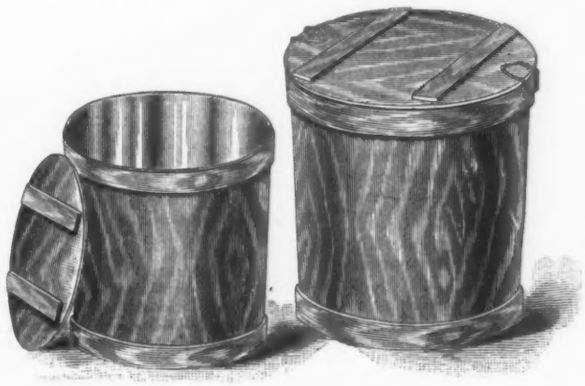


Fig. 2.—Showing Method of Extracting Cork.

Cooley's Patent Wood-Jacket Butter Packages.

These goods are made by Ball Bros. Glass Mfg. Company, Buffalo, N. Y. They are described as made from prime charcoal tin-plate, and incased in selected ash jackets firmly made, with the grain running up and down, so as to avoid splitting. The point is made that the fastener, as shown, is attached to the wood jacket instead of to the tin, as in others, thus making no holes in the tin to cause rust. The hoops are beveled, being thicker at the bottom than at the top, making a substantial base for the jacket to sit on. They are made in sizes 10, 20, 36 and 50 pounds.



Cooley's Patent Wood-Jacket Butter Packages.

Walker's Improved Cork-Puller.

This cork-puller, which is shown in the illustrations herewith given, is the invention of E. Walker, of the Erie Specialty Mfg. Company, Erie, Pa., by whom it is manufactured. Fig. 1 represents it attached, and the corkscrew in process of insertion in the cork, while Fig. 2 shows the use of the lever by means of which the cork is extracted. From these cuts it will be seen that the machine is fastened by screws to a table or shelf, the cork being inserted by means of the handle at the top, which revolves freely and is connected directly with the corkscrew. The power is applied by a crank-and-lever movement, and the point is made that all side pressure and binding of the parts is avoided, making the operation of extracting the cork easy and simple, so that a lady or a child can pull a hard cork with ease. Fig. 3 shows the company's special make of screw which is used in their machine, but, being of standard thread, will fit other machines. Other points made in regard to this cork-puller are: That it cuts the wire when pulling the cork, is not liable to break the bottle, and from its pattern and finish is attractive in appearance. The company also make a strong screw-clamp, to be used on marble and in other places where the machine is to be moved often.

Fig. 3.—Pattern of Corkscrew.

The Clock Trade.—One of the largest manufacturers of American clocks, Seth E. Thomas, in sketching the history of the clock trade, speaks of the substitution 47 years ago of brass wheels for the "grandfather's clock," and the marvelous changes that followed. The tower-clock attached to Independence Hall, Philadelphia, in centennial year, and which was donated to the city by Henry Seibert, cost $6090. The largest one now being constructed is in St. Paul, Minn., which, aside from the chime of bells, will cost $3000. The largest one in the world is in the new Parliament building in London. It was built by Dent, of that city, has a dial 27½ feet in diameter, and cost $60,000. Plans are now preparing for a clock for the new City Hall in Philadelphia, to have a dial 30 feet across. This will be made for between $40,000 and $50,000. Our best foreign market is China and Japan, which take about $150,000 annually. A few go to Russia and Constantinople. They take almost wholly the middle grades—those which cost by wholesale from $4 to $8. The more artistic affairs have little demand there. South America comes next. Then some go to Australia and the South Sea Islands—in fact, wherever ships go. The decrease in the price of silver was an immense factor in decreasing the foreign demand.

Legal Decisions.

CHATTEL MORTGAGES.

There were two mortgages on certain personal property, and the holder of the first mortgage foreclosed his lien and bought the goods for $232, at the regular legal sale thereof. The junior mortgagee, claiming that the property was worth $2500, sued the first mortgagee for the amount of the debt secured by his mortgage, on the ground that by the levy on this property the first mortgagee was chargeable with the actual value of the property, which, after satisfying his mortgage, he was bound to apply to the payment of subsequent incumbrances, and he recovered judgment for the amount of his debt. The case—Dehority *vs.* Paxson—was carried to the Supreme Court of Indiana, where the judgment was reversed. Judge Mitchell, in the opinion, said: "A levy on goods is not an absolute satisfaction, but is to be considered an apparent payment or satisfaction in that manner. If it appears that the levy has been regularly exhausted by a sale duly made, and that the sale has failed to produce a sum sufficient to satisfy the judgment, the levy and sale will be regarded as satisfaction for the amount realized, and a new execution may be had for the residue. The most that can be said is that a levy upon goods of sufficient value to pay the judgment raises the presumption that the execution is satisfied; but this presumption is overcome, as we have stated. If the price was so grossly inadequate as to shock a correct mind, this inadequacy might furnish a strong presumption of fraud or irregularity, and entitle any injured party to have the sale set aside upon seasonable application. The plaintiff has not taken this course, but, on the contrary, has pursued a course which defeats him. He has affirmed the decree taken by the defendant in this action, and that affirmance has the effect to affirm the price at which the property was sold. Besides, he was made a party to the foreclosure proceedings. He cannot have any help in the present suit, and the judgment must be reversed."

PLEDGE—SALE BY MISTAKE—DAMAGES.

W. deposited certain non-dividend-paying stocks as collateral security for the payment of a loan made to him, and the holder of his note and these securities sold the securities before the debt or note fell due, contrary to instructions, but under an honest mistake of fact. The debtor sued to recover the value of the securities, though their proceeds had been applied to the payment of the debt, on the ground that the creditor had converted the stocks to his own use, and he recovered a judgment for the amount. In this case—Wright *vs.* Bank of the Metropolis—the case was carried to the Court of Appeals of New York, where the judgment was reversed. Judge Peckham, in the opinion, said: "The verdict in this case gave most unreasonable damages; they are positive in character and degree. We cannot see any question in the case showing bad faith, or indeed any reason for its existence. The fact is uncontradicted that the defendant sold the stock upon what its officers supposed was sufficient authority to sell it, and it cannot be punished for an honest mistake of fact. The plaintiff is entitled to recover his reasonable loss, and that reasonable loss must be ascertained. In our opinion that reasonable loss is to be determined in this way: The plaintiff should have gone into the market and bought the stocks within a reasonable time after he had learned that they had been illegally sold, and, having performed this just duty to the defendant, he would have had a claim for any loss he suffered by the application of the proceeds of the illegal sale to the payment of his debt, which would be the difference between what he paid to get the stocks again and the amount of his debt with interest. There must be a new trial, and the judgment must be reversed."

The Montreal Trade Schools.

The schools where trades are taught are in this country far fewer than those providing a course in manual training. Of the latter there are, comparatively speaking, a large number, for, in addition to the institutions specially devoted to it, the public schools are adopting manual training as a course in their regular curriculum. There are, however, not many trade schools proper in this country, and it is this class for which there is the greatest present need. The Montreal school provides instruction of the sort required. Through the courtesy of S. C. Stevenson, secretary and director of the Council of Arts and Manufactures of the Province of Quebec, we are supplied with a catalogue and circulars of the Montreal school, which enable us to present a summary of the courses of instruction. The season that has just closed began November 8, 1888, and ended April 8, during which period the school was open every week-day evening for one or more classes. There are two classes in free-hand drawing (junior and advanced), besides mechanical and architectural drawing, while the other courses are modeling and wood-carving, lithography, decorative painting, stairbuilding and building construction, plumbing and boot and shoe pattern making. In each of these classes instruction is given from two to four times a week, between the hours of 7.30 and 9.30 o'clock in the evening, the teachers being practical men, who, we believe, contribute part of their time gratuitously for the benefit of the scholars. There is a nominal fee of one dollar charged when the scholar was not in attendance at the preceding session, but even this amount is returned at the end of the course, except in the case of many absences. Furthermore, the material worked in is provided by the school, the student only having to supply tools and implements. With the exception of plumbing, the courses enumerated do not immediately concern many of our readers, but we do not think they will be the less interested in this brief account. There are two classes of people who are interested in industrial schools, boys and young men who want to learn a trade and parents who want their children taught a trade. The former class do not see *The Metal Worker*, while the latter are, for their children's sake, interested in other trades than their own. Because a man is a tinsmith there is no reason why his son should not be a shoemaker. We would like to be able to give a general summary of the courses of all the trade schools, day and evening, in this country, and we would be glad to receive circulars and catalogues from which we could compile such notices.

A smoke-burner has been tried with satisfactory results on one of the engines of the Wisconsin Central Railroad. A jet of superheated steam is introduced over the fire-box, causing an intense heat, so that the combustion is excellent.

American sailing vessels in the foreign trade are again good property. In this respect a marked change has taken place within a year or two, the supply of tonnage being now short of the demand and the rates of freight are again remunerative. A Newburyport (Mass.) paper says: "Ex-Mayor William A. Johnson owns in at least three barks, perhaps more. Two of them have recently arrived home and been placed under favorable charters. The H. G. Johnson, Colby, has already begun loading freight for Java that will give her $15,500, and leave her at Java just when the sugar crops will come off, assuring a good freight for home or Europe. The B. F. Hunt arrived only last Saturday, and as soon as possible will sail again for Australia, with a $10,000 freight out, to be there just in season for a wool freight home, or any better that she may find. Three months will carry her back to Australia, and $10,000 for a ship that a year ago would not have brought a dozen thousand, though worth more now when there is a use for her, will be a good paying business. The third, the Obed Baxter, Colby, is on her way home with a good freight and a better charter awaiting here." Builders of wooden ships will gather encouragement from these facts.

Emperor William received the delegates of the striking Westphalian miners. He assured them that the Government would use its influence to settle the dispute, but added that if necessary he would himself give the order to the military to shoot down rioters.

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CURRENT HARDWARE PRICES.

MAY 22, 1889.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Ammunition.—

Caps, Percussion, ₱ 1000—

Hicks & Goldmark's
F. L. Waterproof, 1-10's.....50¢
E. B. Trimmed Edge, 1-10's....65¢ } 25 @ 25 & 7½ %
E. B. Grnd. Edge, Cent. Fire, 1-10's.70¢
Double Waterproof, 1-10's...$1.40
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B.....30¢

Union Metallic Cartridge Co.
F. C. Trimmed.....50¢
F. L. Ground.....65¢ } 25 @ 25 & 7½ %
Cent. Fire Ground.....70¢
Dbl. Waterproof.....$1.40
Dbl. Waterproof, in 1.10's...$1.40
S. B. Genuine Imp..orted.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges.
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting.....15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges. 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—
Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Shells—
First quality, 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Star, Club, Rival and Climax brands, 10 and 12 gauge.....33⅓&10&2%
Club, Rival and Climax brands, 14, 16 and 20 gauge.....30&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax..65&2%
I X L, 10 and 12 guage.....40&5&2%
"Special," 16 gauge.....30&10&5&2%
"Special," 10 and 12 gauge.....40&10&2%
Fowler's Pat.....$3.25

Shells Loaded—
A. M. Co. List No. 19, 1887.....20&10%

Wads—
U. M. C. & W. R. A.—B. E., 11 up..$2.00
U. M. C. & W. R. A.—B. E., 9&10..2.30
U. M. C. & W. R. A.—B. E., 7&8...2.60
U. M. C. & W. R. A.—P. E., 11 up..3.10
U. M. C. & W. R. A.—P. E., 9&10..4.00
U. M. C. & W. R. A.—P. E., 7&8...4.90
Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20.....2.80

Anvils.—

Eagle Anvils, ₱ ℔ 10¢.....20@20&5%
Peter Wright's.....9½¢
Armitage's Mouse Hole.....8¾¢
Armitage's Mouse Hole, Extra.11¼@11¾¢
Trenton.....9¼@9½¢
Wilkinson's.....9½@10¢
J. & Riley Carr, Pat. Solid.....11@11¼¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%

Apple Parers—

Advance.....₱ doz $4.75
Antrim Combination.....₱ doz 5.50
Baldwin.....₱ doz 5.25
Champion.....₱ doz 7.25
Eureka, 1888.....each 17.00
Family Bay State.....₱ doz 12.00
Gem.....₱ doz 5.25
Gold Medal.....₱ doz 4.00
Hudson's New '88.....₱ doz 3.75
Ideal.....₱ doz 4.75
Improved Bay State.....₱ doz 30.00
Little Star.....₱ doz 5.00
Monarch.....₱ doz 13.50
New Lightning.....₱ doz 5.50
Oriole.....₱ doz 4.00
Penn.....₱ doz 4.00
Perfection.....₱ doz 4.00
Pomona.....₱ doz 4.00
Rocking Table.....₱ doz 6.00
Turntable.....₱ doz 4.50
Victor.....₱ doz 13.50
Waverly.....₱ doz 4.50
White Mountain.....₱ doz 4.50
72.....₱ doz 4.25
76.....₱ doz 5.75
78.....₱ doz 6.50

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co. } 70%
French, Swift & Co. (F. H. Beecher, Rockford Bit Company.
Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10&50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₱ set, 32½ quarters, No. 5, $5; No. 30, $3.50..20%
Lewis' Patent Single Twist.....45%
Jennings' Augers and Bits.....25%
Imitation Jennings' Bits.....60&60&5%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....50&10&60%
L Hommodieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....10%

Hollow Augers—
Ives'
French, Swift & Co. } 25&10@ 25&10&5%
Douglass'
Bonney's Adjustable, ₱ doz $18...40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25&25&10%

Expansive Bits—
Clarks' small, $18; large, $26...35@35&5%
Ives' No. 4, ₱ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $18.....20%

Gimlet Bits—
Common.....₱ gross $2.75@$3.25
Diamond.....₱ doz $1.10.....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's....45@45&10%
Double Cut, Ct. Valley Mfg. Co ...30&10%
Double Cut, Hartwell's, ₱ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Bit Stock Drills—
Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10&5%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood...40&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—

Sewing, Brass Fer. ₱ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₱ doz.....40&10%
Pat. Sewing, Long.....₱ doz $1.20
Pat. Peg, Plain Top. ₱ gr $10.00...45&10%
Pat. Peg, Leather Top. ₱ gr $12.00.45&10%

Awls, Brad Sets, &c—

Awls, Sewing, Common ₱ gr $1.70, 35%
Awls, Should. Peg. ₱ gr $2.45, 40@40&10%
Awls, Pat. Peg...₱ gr 63¢.....40@40&10%
Awls, Shouldered Brad..2.70 ₱ gr.....35%
Awls, Handled Brad...$7.50 ₱ gr.....45%
Awls, Handled Scratch ₱ gr, $7.50.35&10%
Awls, Socket Scratch, ₱ doz, $1.50.25@30%

Awl and Tool Sets—

Aiken's Sets, Awls and Tools, No. 20, ₱ doz $10.00.....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9.....25@25&10%
Miller's Falls Adj. Tool Hdls.. Nos. 1, $12. 2, $18.....25%
Henry's Combination Haft...₱ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50..70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%

Axes—

Makers' and Special Brands—
First quality.....₱ doz $6.00@$6.50
Others.....₱ doz $5.50@$5.75

Axle Grease—

Fraser's.....Keg ₱ ℔ 4¢, Pail ₱ ℔ 5¢
Fraser's, in boxes.....₱ gr $9.50
Dixon's Everlasting, in bxs...₱ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting...10-℔ pails, ea. 85¢
Lower grades, special brands, ₱ gr $5.50@$7.00

Axles—

No. 1.....4¢@4½¢, No. 2 5¼¢@5½¢
Nos. 7 to 14.....55&5%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
National Tubular Self-Oiling: Standard Farm (1 to 5) and Special Farm (A1 to A5):
Less than 10 sets.....33⅓%
Over 10 sets.....33⅓&5%

Bag Holders.—

Sprengle's Pat.....₱ doz $18.....60%

Balances—

Spring Balances.....50%
Common 24-℔.....₱ doz $1.50.....50%
Chatillon's Spring Balances.....50%
Chatillon's Circular Spring Balances.60%

Bells—

Hand—
Light Brass.....70&10 @ 70%
Extra Heavy.....60&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe (Cone's Patent).....25&10@35%

Door—
Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank, Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Cow—
Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70&70&10%
Texas Star.....50&10&50&10&5%
Call.....40&40&5%
Farm Bells.....₱ ℔ 3¢@3¼¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....50&10&5&60%
Molders'.....40&40&10%
Hand Bellows.....40&10&50%

Belting, Rubber—

Common Standard.....70&10%
Standard.....70&70&5%
Extra.....60&5&60&10%
N. Y. B. & P. Co., Carbon.....60&10&5%
N. Y. B. & P. Co., Diamond.....50&10%

Bench Stops—

Morrill's.....₱ doz $9, 50%
Hotchkiss's.....₱ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9..25&10&5%
McGill's.....₱ doz $3.....10%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—

Extension,
Barber's, ₱ doz $15.00.....40@40&10%
Ives, ₱ doz $20.00.....60@5@60&10%
Diagonal.....₱ doz $24.00, 40%
Angular.....₱ doz $24.00, 40&5%

Blind Adjusters—

Domestic.....₱ doz $3.00, 33⅓%
Excelsior.....₱ doz $10.00.....50&10&2%
Washburn's Self-Locking.....20@20&10%

Blind Fasteners—

Mackrell's, ₱ doz, $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₱ gr..60&10%
Van Sand's Old Pat., $15.00 ₱ gr..55&10%
Washburn's Old Pattern, ₱ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008, ₱ gr.....$9.00
Security Gravity, ₱ gr.....$9.00

Blind Staples—

Barbed, ¼ in. and larger.....₱ ℔ 7½@8¢
Barbed, ⅜ in.....₱ ℔ 8½@9¢

Blocks—

Ordinary Tackle, list May 20, 1889, 40&10@50%
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Bolts—

Door and Shutter—
Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B.K.Flush, Com'n " ....55&10%

Carriage, Machine, &c.—
Com. list June 10, '84.....75&10&2%
Genuine Eagle, list Oct., '84.....75&10%
Phila. pattern, list Oct. 7, '84, 75&10 @ 75&10&5%
R.B.&W., old list.....70%
Machine, according to size....75&10@80%
Bolt Ends, according to size..75&10@80%

Tire—
Common, list Feb. 28, '83.....70%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....70%
Phila., list Oct. '84.....82½%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84....75&10%
American Screw Company:
Norway, Phil., list Oct. 16, '84....75&10%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....82½%
Bay State, list Feb. 28, '83.....70%
R.B.&W., Philadel., list Oct. 16, '84...82½%

Stove and Plow—
Stove.....65%
Plow.....60&5%
R. B. & W., Plow.....55%

Borax.....₱ ℔ 9½@10¼¢

Boring Machines—

	Without Augers.	Upright.	Angular.	
Douglas		$5.50	$6.75	50%
Snell's, Rice's Pat.		5.50	6.75	40@10&10
Jennings		5.50	6.75	45@45&10
Other Machines		2.35	2.75	net
Phillips' Patent with Augers		7.00	7.50	

Bow Pins—

Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W. Co. 50&10@50&10&5%

Braces.—

Barber's,
Nos. 10 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Barker's,
Nos. 8, 10 and 12.....75&10@80%
Plated, Nos. 8, 10 and 12....65&10@70%
Osgood's Ratchet.....40&10@50%
Spofford's.....50&5@50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Common Ball, American.....$1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....60&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
P. S. & W.....50&10%

Brackets—

Shelf plain, Sargent's list, 55&10@55&10&10%
Shelf, fancy, Sargent's list, 60&10@60&10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods.....87½

Broilers—

Henis' Self-Basting. } Inch..... 9 10 9x11
Per doz...$4.50 5.50 6.50

Buckets—See Well Buckets and Pails.

Bull Rings—

Union Co. Nut.....55%
Sargent's.....60%&10&70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%

Butcher's Cleavers—

Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s..40%
P. S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Butts—

Brass—
Wrought Brass.....70@70&10%
Cast Brass, Tiebout's.....33⅓%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—
Fast Joint, Narrow.....50&10&5@60&5%
Fast Joint, Broad.....55&10&5@60&10%
Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns.....
Parliament Butts.....
Mayer's Hinges.....
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips.....
} .70&10 @75%

Wrought Steel—
Fast Joint, Narrow.....
Fast Joint, Lt. Narrow.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin.....
} .70&10 @75%
Bronzed Wrought Butts.....50%

Calipers—

See Compasses.

Calks, Toe—

Gautier.....₱ ℔ 5½@6¢
Dewicks.....₱ ℔ 5½@6¢

Can Openers—

Messenger's Comet.....₱ doz $3.00, 25%
American.....₱ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....₱ doz $3.75, 20%
No. 4 French.....₱ doz $2.25, 55@60%
No. 5, Iron Handle.....₱ gr $6.00, 45@50%
Eureka.....₱ doz $2.50, 10%
Sardine Scissors.....₱ doz $2.75@3.00
Star.....₱ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50 50&10&10%
World's Best, ₱ gross, No. 1, $12.00 No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₱ doz $3.00.....35&5%
Domestic, ₱ doz $2.50.....45%
Champion ₱ doz $2.00.....50%

Cards—
Horse & Curry.....10&10@10&10&10%
Cotton.....10&10&10%
Wool.....10@10&10%

Carpet Stretchers—
Cast Steel, Polished.....₱ doz $2.25
Cast Iron, Steel Points.....₱ doz 80¢
Socket.....₱ doz $1.75
Bullard's.....25@25&10%

Carpet Sweepers—
Bissell No. 5.....₱ doz $17.00
Bissell No. 7 New Drop Pan.₱ doz $19.00
Bissell, Grand.....₱ doz $36.00
Grand Rapids.....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₱ doz $15.00
Jewel.....₱ doz $17.00
Improved Parlor Queen, Nickeled.....₱ doz $27.00
Japanned.....₱ doz $24.00
Excelsior.....₱ doz $22.00
Garland.....₱ doz $18.00
Parlor Queen.....₱ doz $24.00
Housewife's Delight.....₱ doz $15.00
Queen.....₱ doz $16.00
Queen, with band.....₱ doz $18.00
King.....₱ doz $30.00
Weed, Improved.....₱ doz $18.00
Hub.....₱ doz $16.00
Cog-Wheel.....₱ doz $16.00
Conqueror.....₱ doz $22.00
Easy.....₱ doz $22.00
Monarch.....₱ doz $22.00
Goshen.....₱ doz $21.00
Advance.....₱ doz $18.00
Ladies' Friend, No. 1, ₱ doz, $15.00; No. 2.....₱ doz $16.00
American.....₱ doz $15.00
Grand Republic.....₱ doz $35.00

Cartridges—
See Ammunition.

Casters—
Bed.....
Plate.....
Shallow Socket.....
Brass.....55@55&5%
Others.....60@60&5%
Deep Socket.....40&10%
Yale Casters, list May, 1884..30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—
Humason, Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....50&10%

Chain—
Trace, 6½-10-2, exact, ₱ pair, $1.03.....50&10@50&10&5%
race, 6½-10-3, exact, ₱ pair 92¢.....50&10@50&10&5%
Trace, 7-10-2, exact, ₱ pair $1.11.....50&10@50&10&5%
NOTE.—Traces, "Regular" sizes, 3¢ net ₱ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, List Nov. 1, 1884 50&10@50&10&5%
American Coil, in cask lots, 3-16 ¼ 5-16 ⅜ 7-16 ½ ⅝ ¾ $8.75 6.25 5.00 4.50 4.40 4.00 3.75 3.50
Less than cask lots, add ½¢@1½¢ ₱ ℔.
German Coil, list of June 20, 1887 50&10&5@60%
German Halter Chain, list of June 20, 1887.....50&10&5@60%
Covert Halter, Hitching and Breast 50&2%
Covert Traces.....35@2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₱ ℔ 5½¢@6¢
Jack Chain, Iron.....75@75&5%
Jack Chain, Brass.....70@70&5%

Chalk—
White.....₱ gr 50¢
Red.....₱ gr 70¢
Blue.....₱ gr 85¢
See also Crayons.

Chalk Lines—
See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W.....
New Haven.....
Witherby.....
Mix.....
Ohio Tool Co.....
75&5@75&10%
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%
Tanged and Miscellaneous.
Tanged Firmers.....40&10%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₱ ℔.....16@19¢

Chucks—
Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Balz Pat.....25%
Skinner's Pat. Drill Chucks.....30%
Skinner's Independent Lathe Chucks.40%
Skinner's Pat. Comb. Chuck.....40%

Clamps—
R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Gray's.....20%
Adjustable, Lambert's.....20%
Adjustable, Snow's.....40&5%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....20&10%
Stearn's Adjustable Cabinet and Corner.....20&10%
Cabinet, Sargent's.....66⅔&10%
Carriage Makers', Sargent's.....70&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16..65&5%
Superior Axle Clips..66⅔&5@66⅔&5&5%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₱ ℔, 5½¢
Steel Felloe Clips.....₱ ℔, 5¢
Baker Axle Clips.....25%

Cockeyes.....50%

Cocks, Brass.
Hardware list.....40, &10&2%

Coffee Mills—
Box and Side, List Jan. 1, 1888.....50&2%
American, Enterprise Mfg Co.20&10@30%
The Swift, Lane Bros.....20&10%

Compasses Dividers, &c—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's Spring Calipers and Dividers 25&10&10%
Lock Calipers and Dividers.....25&10%
Combination Dividers.....25&10%

Coopers' Tools—
Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%

Corkscrews—
Humason & Beckley Mfg. Co..40@40&10%
Clough's Pat.....33⅓@33⅓&5%
Howe Bros & Hulbert.....35%

Cork Knives and Cutters—
Bradley's.....10%
Wadsworth's.....25%

Cradles—
Grain.....50&2%

Crayons.
White Crayons, ₱ gr 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₱ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₱ gr, $2.50.....25%
See also Chalk.

Crow Bars—
Cast Steel.....₱ ℔ 4¢
Iron, Steel Points.....₱ ℔ 3½¢

Curry Combs—
Fitch's.....50&10@50&10&10%
Rubberper doz $10.00.....20%
Perfect.....50%

Curtain Pins—
Silvered Glass.....net
White Enamel.....net

Cutlery—
Beaver Falls & Booth's.....33⅓
Wostenholme.....$7.75 to $

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Dividers—
See Compasses.

Dog Collars—
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Door Springs—
Torrey's Rod, regular size.....₱ doz $1.30
Gray's, ₱ gr., $20.00.....20%
Bee Rod ₱ gr., $20.00.....20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30.....40&10&50%
Gem (Coil), list April 19, 1886.....10%
Star (Coil), list April 19, 1886.....20%
Victor (Coil).....60@60&10%
Champion (Coil).....60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75..
Cowell's.....No. 1, ₱ doz, $18.00; No. 2, $15.00.....50%
Rubber, complete, ₱ doz, $4.50...55&10%
Hercules.....50%
Shaw Door Check and Spring.25@30@35%

Drawing Knives—
Witherby.....
P. S. & W.....
Mix.....
New Haven.....
75&5@ 75&10%
Merrill.....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50.20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's.....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5%
Ratchet, Whitney's.....20&10%
Ratchet, Weston's.....20@25%
Ratchet, Moore's Triple Action..25@30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools...$1.75@1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse.....50&10&5%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—
Smallsizes.....₱ ℔ 6¾¢
Large sizes.....₱ ℔ 6¼¢

Egg Beaters.
Dover.....₱ doz $1.50
National, ₱ doz $4.50.....33⅓%
Family (T. & S. Mfg. Co.), ₱ gro $17.00@$18.00
Duplex (Standard Co.).....₱ gro $15.00
Rival (Standard Co.).....₱ gro $12.00
Large Duplex (Standard Co.), ₱ doz $4.50
Triumph (T. & S. Mfg. Co.), ₱ gro $10.50@$11.50
Advance, No. 1.....₱ gro $10.50
Advance, No. 2.....₱ gro $10.00
Bryant's.....₱ gro $15.00
Ayres' Spiral.....₱ gro $5.00
Double (H. & R. Mfg. Co).....₱ gro $16.20
Easy (H. & R. Mfg. Co.).....₱ gro $14.00
Triple (H. & R. Mfg. Co.).....₱ gro $16.20
Spiral (H. & R. Mfg. Co.).....₱ gro $4.50
Paine, Diehl & Co.'s.....₱ gro $24.00

Egg Poachers—
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%

Electric Bell Sets.—
Wollensak's.....20%
Bigelow & Dowse.....20%

Emery— No. 4 to 46 gr. | No. 54 to 150 gr. | Flour, CF FF.
Kegs, ₱ ℔.....4½¢ | 5 ¢ | 2½¢
½ kegs, ₱ ℔...4¾¢ | 5¼¢ | 2¾¢
¼ kegs, ₱ ℔...5 ¢ | 5½¢ | 3 ¢
10-℔ cans, 10 in case.....6 ¢ | 6½¢ | 5 ¢
10-℔ cans, less than 10.....10 ¢ | 10 ¢ | 7½¢

Enameled and Tinned Ware—
See Hollow-Ware.

Escutcheon Pins—
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co. West's Lock, Open and Shut Key...50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@60&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers' Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring Enterprise, ₱ doz $50.00.....20&10%
Lane's, ₱ doz $36.00.....25&10%
Victor, ₱ doz $36.00.....25 &10%

Felloe Plates.....₱ ℔ 6@6½¢

Fifth Wheels.—
Derby and Cincinnati.....40 &7½

Files—
Domestic—
Nicholson Files, Rasps, &c..60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
Other makers, best brands 60&10@60&10&10%
Fair brands.....60&10&10@70%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps....60&10@60&10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Imported—
J. & Riley Carr....List, April 1, 1883, 15%
J. & Riley Carr Horse Rasps.....10%
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25&30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fluting Machines—
Knox, 4¼-inch Rolls.....$3.25 each
Knox, 6-inch Rolls.....$3.60 each 35%
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₱ doz $15.30.....40%
Shepard Hand Fluter, No. 110 ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter. ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo.....₱ doz $10.00.....10%

Fluting Scissors—.....45%

Fodder Squeezers—
Blair's.....₱ doz $2.00
Blair's "Climax".....₱ doz $1.25

Forks—
Hay, Manure, &c., Asso. List.....65%
Hay, Manure, &c., Phila. List 60@60&5%
Plated, see Spoons.

Freezers, Ice Cream—
Buffalo Champion.....60&10&5%
Shepard's Lightning.....65 @ 65&5%
White Mountain.....50&20&5%
New Arctic.....50&40&5%
American.....60%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10
Zero and Pet.....65&10
Boss.....65&10&10

Fruit and Jelly Presses—
Enterprise Mfg. Co.....20&10&30%
Henis.....₱ doz $2.50
Shepard's Queen City.....40%

Fry Pans—

High List	0	1	2	3	4
No.					
₱ doz.	$3.75	$4.70	$5.30	$5.95	$6.55

	5	6	7	8
No.				
₱ doz	$7.50	$8.75	$10.00	$11.25

Low List	0	1	2	3	4
No.					
₱ doz.	$3.00	$3.75	$4.25	$4.75	$5.25

	5	6	7	8
No.				
₱ doz.	$6.00	$7.00	$8.00	$9.00

Fuse— ₱ 1000 ft
Common Hemp Fuse, for dry ground.$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 4.25
Double Taped Fuse, for very wet gr. 5.40
Triple Taped Fuse, for very wet gr.. 6.50
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gauges—
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch, 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....50&50&5%
Wire, Brown & Sharpe's.....10@20%

Gimlets—
Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₱ gr $5.00
Double Cut, Shepardson's....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₱ gr $12.....25@25&5%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process 25@25&5%

Glue Pots—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Grindstones—
Small, at factory.....₱ ton $7.50@9.00

Grindstone Fixtures—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%

Hack Saws.—
See Saws.

Halters—
Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....40&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85..
Buffalo Hammer Co....
Humason & Beckley....
Atha Tool Co.....
25@25&10%
List Jan. 15, '87 50@50&10%
Fayette R. Plumb.....40&10@50%
C. Hammond & Son.....40&10@50%
Verree.....5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 ℔ and under.....₱ ℔ 40¢
3 to 5 ℔.....₱ ℔ 30¢
Over 5 ℔.....₱ ℔ 30¢
60&10 &10 @ 70%
Wilkinson's Smiths.....10½¢@11¢ ₱ ℔

Handcuffs and Leg Irons—
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00; 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00.....25%

Handles—
Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.18	1.35	1.50

60&10&10%
Roggin's Latches.....₱ doz 30¢@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.....net
Barn Door, ₱ doz $1.40.....10&10%
Chest and Lifting.....70%
Handles, Wood—
Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₱ gr $2.00
Hickory Firmer Chisel, ass'd. ₱ gr 4.50
Hickory Firmer Chisel, large. ₱ gr 5.00
Apple Firmer Chisel, ass'd...₱ gr 5.00
Apple Firmer Chisel, large...₱ gr 6.00
Socket Firmer Chisel, ass'd...₱ gr 3.00
Socket Framing Chisel, ass'd. ₱ gr 5.00
40&10%
J. S. Smith & Co.'s Pat File.....50%
File, assorted.....₱ gr 2.75
Auger, assorted.....₱ gr 5.00
Auger, large.....₱ gr 7.00
40@ 40&10%
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass'.....₱ set $1.25
Pat. Auger, Swau'.....₱ set $1.00
Hoe Rake Shovels &c.....50&10%

Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ℔ pair, 30¢; No. 3, 22¢; No. 2 and No. 4 Reversible, 22¢.
Boynton's Loop Saw Handles, 50¢... 60%
Champion.....15¢

Hangers—
Barn Door, old patterns...60&10&10@70%
Barn Door, New England..60&10&10@70%
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Climax Anti-Friction.....60%
limax Anti-Friction for Wood Track..55%
Zenith for Wood Track.....55%
ed's Steel Arm.....50%
allenge, Barn Door.....50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....50&10@60%
The Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&5%
Terry's Pat., ℔ doz pr. 4 in., $10.00; 5 in. $12.00.....50&5@50&10%
Cronk's Pat., No. 4, $12.00; No. 5, $14.40; No. 6, $18.00.....50&15@60%
Wood Track Iron Clad, ℔ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50@50&5%
Architect, ℔ set $6.00.....20%
Eclipse.....20&10%
Felix, ℔ set $4.50.....20%
Richards'.....30@30&10%
Lane's Steel Anti-Friction.....40&10%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20@20&10%
Stearns' Anti-Friction.....20@20&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ℔ set $6.00.....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Paragon, Nos. 5, 5½, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel, Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap..33⅓%
Scranton Anti-Friction Double Strap..40%
Universal Anti-Friction.....40%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%

Harness Snaps—
See Snaps.

Hatchets—
List Jan. 1, 1886.
Isaiah Blood.....35@40%
Hunt's Shingling, Lath and Claw..40&5%
Hunt's Broad.....40%
Buffalo Hammer Co.....40&10@50%
Hurd's.....40&10@50%
Fayette R. Plumb.....40&10@50%
Wm. Mann, Jr., & Co.....50@50&5%
Underhill Edge Tool Co.....40&5@40&10%
Underhill's, Haines and Bright.....33⅓%
C. Hammond & Son.....40&10@50%
Simmons'.....40&10@50%
Peck's.....40&10@40&10&5%
Kelly's.....50@50&5%
Sargent & Co.....50%
Ten Eyck Edge Tool Co.40&10@40&10&5%
Collins.....10%
Schuite, Lohoff & Co.....50@50&5%

Hay and Straw Knives—
Lightning..Mfrs', price ℔ doz $18.00, 25% But jobbers frequently give extras.
Gem.....℔ doz $10
Wadsworth's.....40&7½@40&10%
Carter's Needle.....℔ doz $11.50@$12.00
Heath's.....℔ doz $13.50@$14.00
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay.....℔ doz $10.00

Hinges—
Wrought Iron Hinges
Strap and T.....75&5@75&10%
Screw Hook and Strap: 6 to 12 in., ℔ ℔ 3¼¢; 14 to 20 in., ℔ ℔ 3¼¢; 22 to 36 in., ℔ ℔ 2¾¢
Heavy Welded Hook: 6 to 12 in., ℔ ℔ 3¼¢; 14 to 20 in., ℔ ℔ 3¼¢; 22 to 36 in., ℔ ℔ 2¾¢
Screw Hook and Eye: ½ in., ℔ doz $1.50; ⅝ in., ℔ doz $2.45; ¾ in., ℔ doz $3.80 — 10%
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges (8, 10 & 12 in., ℔ ℔.....5¼
"Providence" over 12 in., ℔ ℔.....4¾
Spring Hinges—
Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March, 1886.....20%
Acme and U. S.....30%
Empire and Crown.....20%
Hero and Monarch.....50%
American, Gem, and Star, Japanned..20%
American, Gem, and Star, Bronzed...net
Oxford, Bronze and Brass.....net
Barker's Double Acting.....20&10%
Union Mfg. Co.....25%
Bommer's.....30%
Buckman's.....15@20%
Chicago.....30%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....40%
Reliable.....60%
Champion.....30%
Gate Hinges—
Western.....℔ doz $4.40, 60%
N. E.....℔ doz $7.00, 55%
N. E. Reversible.....℔ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....℔ doz $5.00, 55&10%
Automatic.....℔ doz $12.50, 50%
Common Sense.....℔ doz pair $4.50, 50%
Seymour's.....45&10%
Shepard's.....60&10&5%
Reed's Latch and Hinges. ℔ doz $12.00, 50%
Blind Hinges—
Parker.....75&2%
Palmer.....50&5&10%
Seymour.....70&2%
Nicholson.....45&10%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity.....50%
Sargent's, Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10&5%
Niagara.....80&2½%
Buffalo.....80&5%
Clark's Genuine Pat.....80&5%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75&5%
Queen City Reversible.....75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10@2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50.....25&2%

Hoes—
Handled—
Garden, Mortar, &c.....65%
Planter's, Cotton, &c.....65%
Warren Hoe.....60%
Magic.....℔ doz $4.00
Eye—
D. & H. Scovil.....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat.....60%
Hubbard & Co., S. & O. Pat.....60%
Chattanooga Tool Co., S. & O. Pat...60%
Grub.....60@60&10%

Hog Rings and Ringers—
Hill's Improved Ringers.....℔ doz $4.25
Hill's Old Style Ringers.....℔ doz $2.75
Hill's Tongs.....℔ doz $4.50
Hill's Rings.....℔ doz bxs $2.15@2.25
Perfect Rings.....℔ doz bxs $1.60@1.70
Perfect Ringers.....℔ doz $2.15@$2.25
Blair's Hog Ringers.....℔ doz $2.25@2.50
Blair's Hog Rings.....℔ doz 90¢@$1.00
Champion Ringers.....℔ doz $2.00
Champion Rings, Double.....℔ doz $2.25
Brown's Ringers.....℔ doz $2.00
Brown's Rings.....℔ doz $1.25@1.30

Hoisting Apparatus—
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Differential Pulley Block...40%
Energy Mfg. Co's.....25%

Holders, File and Tool—
Balz Pat.....℔ doz $4.00; 25%
Nicholson File Holders.....20%

Hollow-Ware—
Iron—
Stove Hollow-Ware—
Ground.....60@60&5%
Unground.....60@10&60&10&10%
Boilers and Saucepans.....40&5%
Tinned Boilers and Saucepans.....40%
Gray Enameled-Ware—
Stove.....45@50%
Maslin Kettles.....60&10@60&10&10%
Boilers and Saucepans.....40&5%
Agate and Granite Ware, list Jan. 1, 1889.....33⅓&10%
Rustless Hollow-Ware.....50@50&5%
Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢	65¢	75¢

Silver Plated—
4 mo. or 5 % cash in 30 days.
Reed & Barton — 40&5%
Meriden Britannia Co. — 40&5%
Simpson, Hall, Miller & Co. — 40&5%
Rogers & Brother — 40&5%
Hartford Silver Plate Co — 40&5&5%
William Rogers Mfg. Co — 40&5&5%

Hooks—
Cast Iron—
Bird Cage, Sargent's list.....
Bird Cage, Reading..... — 60&10&10%
Clothes Line, Sargent's list..
Clothes Line, Reading list.....
60&10@60&10&10%
Ceiling, Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%
Wrought Iron—
Cotton.....℔ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)..50%
Wrought Staples, Hooks, &c. See Wrought Goods.
Wire—
Wire Coat and Hat, Gem, list April, 1886.....45%
Wire Coat and Hat, Miles', list April, 1886.....45%
Indestructible Coat and Hat.....45%
Wire Coat and Hat, Standard.....45%
Belt.....75&10@80%
Miscellaneous.
Grass, No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....℔ doz $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70&70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks.....See Bench Stops.

Horse Nails—

Nos.	6	7	8	9	10
Ausable	28¢	26¢	25¢	24¢	23¢.

25&10@25&10&10%
Clinton, Fin..24¢ 22¢ 21¢ 20¢ 19¢. 40&10@50%
Essex ....28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Lyra.....25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Snowden ...25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Putnam.....23¢21¢ 20¢ 19¢ 18¢. 1000 ℔ in year 15%
Vulcan.....23¢ 21¢ 20¢ 19¢ 18¢..12½&5%
Northwest'n.25¢ 23¢ 22¢ 21¢ 20¢. 10&10&5&5%
Globe.....23¢ 21¢ 20¢ 19¢ 18¢..20&2½%
Boston.....23¢ 21¢ 20¢ 19¢ 18¢ 20&2½%
A. C.....25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
C. B.-K.....25¢ 23¢ 22¢ 21¢ 20¢. 25¢ to@33⅓&5%
Champlain .28¢ 6¢ 25¢ 24¢ 23¢. 25&10&10%
New Haven..28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Saranac.....23¢ 21¢ 20¢ 19¢ 18¢...30&10%
Champion ...25¢ 23¢ 22¢ 21¢ 20¢. 10&10&10%
Capewell.....28¢ 26¢ 25¢ 24¢ 23¢. 35&5@35&10%
Star.....23¢ 21¢ 20¢ 19¢ 18¢. 10&10¢&10&12½%
Anchor.....23¢ 21¢ 20¢ 19¢ 18¢.....35¢
Western.....23¢ 21¢ 20¢ 19¢ 18¢..40&10%
Empire Bronzed.....14 ℔ ℔.

Horse Shoes—See Shoes Horse.

Hose, Rubber—
Competition.....75&10@75&10&5%
Standard.....70@70&10%
Extra.....66@60&10%
N. Y. B. & P. Co., Para.....30&10%
N. Y. B. & P. Co., Extra.....50%
N. Y. B. & P. Co., Dundee.....60&10&5%

Huskers—
Blair's Adjustable.....℔ gr $8.00
Blair's Adjustable Clipper.....℔ gr 7.00

Indurated Fiber-Ware.
Spittoons, No. 2, ℔ doz.....$6.75
Basins, Ringed, ℔ doz., No. 1, $3.70; No. 2, $3.10; No. 3.....$2.70
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ℔ doz. nests.....$16.87
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ℔ doz. nests.....$8.37
Butter Bowls 15, 17 and 19-inch (3 pieces), ℔ doz. nests.....$6.75
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ℔ set.....$3.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ℔ set.....$2.25
See also *Pails.*

Jack Screws—See Screws.

Kettles—

	Spun.	Stamped.
Brass, 7 to 17 in., ℔ ℔....	24¢	21 ¢
Brass larger than 17 in., ℔ ℔.....	26¢	23½¢

Enameled and Tea Kettles. See *Hollow-Ware.*

Keys—
Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....℔ doz $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—
Parkin's.
Applewood Handles...℔ doz $6.00, 40%
Rosewood or Cocobolo. ℔ doz $9.00, 40%

Knives—
Wilson's Butcher Knives.....25@30%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Nichols' Butcher Knives.....40&10%
Ames' Shoe Knives.....20@25%
Ames' Bread Knives. ℔ doz $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent.....$3.50

Knobs—
Door Mineral.....65@68%
Door Por. Jap'd.....75@78%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10&5%
Picture, Sargent's.....70&10%
Picture, Hemacite.....35&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....℔ gro 80¢, 60&10%

Ladles.—
Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...℔ doz $4.00, 40%
Melting, F. S. & W.....35&10@40%
Melting, Warner's.....30%

Lawn Mowers—
Standard List.....50&10%
Quaker City.....60&10%
Enterprise.....60&10%

Lanterns—
Tubular—
Plain with Guards, ℔ doz.....$4.00@4.25
Lift Wire, with Guards.....$4.50@4.75
Square Plain, with Guards.....$4.00@4.25
Sq. Lift Wire, with Guards.....$4.25@4.50
Without Guards, 25¢ ℔ doz less.
Miscellaneous.
Police, Small, $6.00; Medium, $7.25; Large, $9.75.....20@25%

Lemon Squeezers—
Porcelain Lined, No. 1....℔ doz $6.00, 25&30%
Wood, No. 3.....℔ doz $3.00, 35%
Wood, Common.....℔ doz $1.70@1.75
Dunlap's Improved .....℔ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ℔ doz.....25&10%
Jennings' Star.....℔ doz $2.50
The Boss.....℔ doz $2.50
Dean's..Nos. 1, ℔ doz $6.50; 2, $3.35; 3, $1.90
Little Giant.....50@50&5%
King.....40&5%

Lines—
Cotton and Linen Fish, Draper's.....50%
Draper's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ℔ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton.....45%
Wire Clothes...Nos. 18 19 20
$3.00 $3.00 $2.5
Ventilator Cord, Samson Braided, White or Drab Cotton..℔ doz $7.50, 20%

Locks, &c.—
Door Locks, Latches, &c.
List Dec. 30, '86, chgd Feb. 2, '87..... 50&10@60&10%
Mallory, Wheeler & Co., list July, '88 50&10@60@10%
Sargent & Co., list Aug. 1, '88..55&2& 10@60@10&5%
Reading Hardware Co., list Feb. 2, '88. 55&60&10%
Note.—Lower net prices often made.
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
F. Many's "Extension Cylinder" $10.50 ℔ doz.
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deitz Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Sheparison or U. S.....35%
Felter or American.....40&10%
Seed's N. Y. Hasp Lock.....25%
Cabinet—
Eagle, Gaylord Parker and Corbin... List March, '84, rev. Jan.1,'85..33⅓&2%
Deitz, Nos. 36 to 39.....40%
Deitz, Nos. 51 to 63.....40&10%
Deitz, Nos. 86 to 96.....30%
Stoddard Lock Co.....30@33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....25%
Padlocks—
List Dec. 23, '84.....75@75&10%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....25&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deitz.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....45%
Horseshoe.....℔ doz, $9. 40&10&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
Fraim's Pat. Scandavian low list.....60%
Ames Sword Co. up to No. 150.....40%
Ames Sword Co. above No. 150.....50%

Lumber Tools.
Ring Peavies, "Blue Line"...℔ doz $20.00
Ring Peavies, Common.....℔ doz $18.00
Steel Socket Peavies.....℔ doz $21.00
Mall. Iron Socket Peavies.....℔ doz $19.00
Cant Hooks, "Blue Line"...℔ doz $16.00
Cant Hooks, Common Finish..℔ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....℔ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....℔ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....℔ doz $12.00
Hand Spikes....℔ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ℔ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ℔ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ℔ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ℔ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....℔ doz $18.00

Lustro—
Four-ounce Bottles....℔ doz, $1.75; ℔ gross.....$17.00

Mallets—
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Match Safes—
Dangerfield's Self-Igniting...℔ doz $1.50

Mattocks. Regular list....60&5@60&10%

Meat Cutters—
Dixon's ℔ doz.....40&5%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Woodruff's ℔ doz.....40&5%

Nos.	100	150
	$15.00	$18.00

Champion ℔ doz .....40&45%

Nos.	200	300	400
	$22.00	$27.00	$40.00

Hales Pattern ℔ doz.....70@70&5%

Nos.	11	12	13
	$27.00	$33.00	$45.00

American.....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise.....30%

Nos.	10	12	22	32	42
Each	$3	$2.50	$4	$6	$15

Pennsylvania.....40&10%

Nos.	1	2	3	00
℔ doz	$24.00	$28.00	$36.00	$28.00

Miles' Challenge ℔ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

Home No. 1.....℔ doz, $26.00, 55&10%
Draw Cut, each:

Nos.	5	2	6	8
	$50	$75	$80	$225

.....20@25%
Beef Shavers (Enterprise).....20&10@30%
Chadborn's Smoked Beef Cutter. ℔ doz $66.00

Mincing Knives—
Am. (2d quality, ℔ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ℔ doz, Single, $2.00; Double, $3 40@45%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable. .....℔ doz, $3.00. 25%

Molasses Gates—

Stebbin's Pat. ..... 70@70&7½%
Stebbin's Genuine ..... 60&10&10%
Stebbin's Tinned Ends ..... 40&10%
Chase's Hard Metal ..... 50&10%
Bush's 20%
Lincoln's Pattern ..... 70@70&10
Weed's ..... 20&10%

Boss, ₱ doz:
Nos. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10 ..... 60&10&10%

Money Drawers....₱ doz, $18@$20

Muzzles—

Safety ..... ₱ doz, $3.00, 25 %

Nails, see Trade Report.

Wire Nails & Brads, list July 14, '87 ..... 70&10%

Wire Nails, Standard Penny...₱ keg ..... $2.50@$2.60

Nail Puller—

Curtiss Hammer ..... ₱ doz $9.00
Giant, No. 1 ..... ₱ doz. $30.00, 10%
Pelican ..... ₱ doz, $9.00, 25%
Boss ..... ₱ doz, $30.00, 30%
Lightning ..... ₱ doz $21.00

Nail Sets—

Square ..... ₱ gr., $4.00@$4.25
Round ..... ₱ gr. $3.25
Cannon's Diamond Point...₱ gr.,$12, 20%

Nut Crackers—

Table (H. & B. Mfg. Co.) 40%
Blake's Pattern ..... ₱ doz $2.00, 10%
Turner & Seymour Mfg. Co. 50%

Nuts—

Nuts, off list Jan. 1, 1888:	Square.	Hex.
Hot Pressed	5.4¢	5.9¢
Cold Punched	5.4¢	5.5¢

In lots less than 100 ℔, ₱ ℔, add ½¢; 1-℔ boxes, add 1¢ to list.

Oakum—

Government ..... ₱ ℔ 7¾ @8 ¢
U. S. Navy ..... ₱ ℔ 6¾ @ 7¢
Navy ..... ₱ ℔ 5¾¢@6¼¢

Oilers—

Zinc and Tin ..... 65@65&10%
Brass and Copper ..... 50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&10%
Malleable, Hammers, Old Pattern, same list 40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass 50%
Olmstead's Tin and Zinc 60%
Olmstead's Brass and Copper 50%
Broughton's Zinc 60%
Broughton's Brass 50%

Packing, Steam—

Rubber—

Standard ..... 60&10@60&10&10%
Extra ..... 50&10@60%
N. Y. B. & P. Co., Standard ..... 50&10&5%
N. Y. B. & P. Co., Empire 70%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 30%
Jenkins' Standard ..... ₱ ℔ 80¢, 35%

Miscellaneous—

American Packing ..... 10¢@11¢ ₱ ℔
Russia Packing ..... 14¢ ₱ ℔
Italian Packing ..... 13¢@14¢ ₱ ℔
Cotton Packing ..... 15¢@17¢ ₱ ℔
Jute ..... 7¢@8¢ ₱ ℔

Padlocks—

See Locks.

Pails—

Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shephard & Co.	2.80	3.00	3.40
Iron Clad	2.75	3.00	3.25
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—

Star Pails, 12 qt ..... ₱ doz $4.50
Fire, Stable and Milk, 14 qt .. ₱ doz $5.85

Pencils—

Faber's Carpenters' ..... high list 50%
Faber's Round Gilt ..... ₱ gro $5.25
Dixon's Lead ..... ₱ gro $4.50
Dixon's Lumber ..... ₱ gro $6.75
Dixon's Carpenters' ..... 40&10%

Picks—

Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00 ..... 60%

Picture Nails—

Brass Head, Sargent's list ..... 50&10&10%
Brass Head, Combination list ..... 50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent 40%

Pinking Irons— ₱ doz 65¢ net

Pipe, Wrought Iron—

List March 23, 1887.

1¼ and under, Plain 52½%
1¼ and under, Galvanized 45%
1½ and over, Plain 65%
1½ and over, Galvanized 52½%

Boiler Tubes, Iron.

1¾ and under 57½%
2 in. to 2¾ in. 62½%
3 in. and larger 65%

Planes and Plane Irons—

Wood Planes—

Molding ..... 50&5@50&10%
Bench, First Quality ..... 60@60&5%
Bench, Second Quality. 60&10@60&10&10%
Bailey's (Stanley R. & L. Co.). ..... 40&10%

Iron Planes—

Bailey's (Stanley R. & L. Co.). ..... 40@10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 20&10%
Victor Planes (Stanley R. & L. Co.). 20&10%
Steer's Iron Planes ..... 35@35&5%
Meriden Mal. Iron Co.'s. 30&10@30&10&10%
Davis's Iron Planes ..30&10@30&10&10%
Birmingham Plane Co. ..... 50@50&5%
Gage Tool Co.'s Self-Setting ..... 20&10%
Chaplin's Iron Planes ..... 40@40&5%
Sargent's ..... 30&10@30&10&10%

Plane Irons—

Plane Irons ..... 20&10%
Plane Irons, Butcher's...$5.00@$5.25 to £
Plane Irons, Buck Bros 30%
Plane Irons, Auburn Tool Co., "Thistle" 40%
Sandusky Tool Co.:
Single and Cut 30%
Double 40%
L. & I. J. White 25%

Pliers and Nippers—

Button's Patent ..... 30&10@40%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz ..... 30&10@33⅓%
Humason & Beckley Mfg. Co. .50@50&10%
Gas Pliers 60%
Gas Pliers, Custar's Nickel Plated. .60&5%
Eureka Pliers and Nippers 40%
Russell's Parallel 25%
P. S. & W. Cast Steel 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters 20%
Morrill's Parallel, ₱ doz, $12.00. ..30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—

Regular List ..... 70&10@70&10&10%
Disston's ..... 45&10%
Pocket Levels ..... 70&10@70&10&10%
Davis Iron Levels 30%
Davis' Inclinometers ..... 10&10%

Polish, Metal.

Prestoline ..... 20&10%
Krestoline Paste 33⅓%
Gaston's Silver Compound 33⅓%

Pokes, Animal—

Bishop's I. X. L. ..... ₱ doz $6.50
Bishop's O. K. ..... ₱ doz $5.50
Bishop's Pioneer ..... ₱ doz $3.75
Bishop's American ..... ₱ doz $3.00

Poppers, Corn—

Round or Square, 1 qt.. ₱ gr $12.00@15.00
Round or Square, 2 qt.. ₱ gr $25.00@26.00

Post Hole and Tree Augers and Diggers—

Samson Post Hole Digger, ₱ doz $36.00. 25&10%
Fletcher Post Hole Augers, ₱ doz $36, 20%
Eureka Diggers ..... ₱ doz $16.00@17.00
Leed's ..... ₱ doz $8.00@9.00
Vaughan's Post Hole Auger, ₱ doz $13.00@14.00
Kohler's Little Giant ..... ₱ doz $18.00
Kohler's Hercules ..... ₱ doz $15.00
Kohler's New Champion ..... ₱ doz $9.00
Schneider ..... ₱ doz $18.00
Ryan's Post Hole Diggers ..... ₱ doz $24.00
Cronk's Post Bars, ₱ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₱ doz $30.00, 50%
Imperial, ₱ doz, $15 ..... 45%

Potato Parers—

White Mountain ..... ₱ doz $5.00@5.50
Antrim Combination ..... ₱ doz $8.00
Hoosier ..... ₱ doz $13.50

Pruning Hooks and Shears—

Disston's Combined Pruning Hook and Saw ..... ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2, 7.25

Pulleys—

Hot House, Awning, &c. ..... 60&10%
Japanned Screw ..... 60&10%
Brass Screw ..... 60&10%
Japanned Side ..... 66⅔&10&10%
Japanned Clothes Line. ..... 60&10%
Empire Sash Pulley ..... 55@60%
Moore's Sash, Anti-Friction. 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 ..... 50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ..... 50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron 20%
Hay Fork, Reed's Self-Lubricating ...60%
Shade Rack 45%
Tackle Blocks ..... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00 ..... 40%

Pumps—

Cistern, Best Makers ..... 50&10@60%
Pitcher Spout, Best Makers ..60&10@60 &10&10%
Pitcher Spout, Cheaper Goods...70&5@ 70&10&5%

Punches—

Saddlers' or Drive, good, ₱ doz...60@65¢
Bemis & Call Co.'s Cast Steel Drive. .50&5%
Bemis&Call Co's Springfield Socket. 50&5%
Spring, good quality .... ₱ doz $2.50@2.60
Spring, Leach's Pat 15%
Bemis & Call Co.'s Spring and Check . .40%
Solid Tinners' ..... ₱ doz $1.44, 55%
Tinners' Hollow Punches ..... 20&2%
Rice Hand Punches 15%
Avery's Revolving ..... 30&10%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—

Sliding Door, Wr't Brass, ₱ ℔ 35¢ 15%
Sliding Door, Bronzed Wr't Iron. ₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door, Light. In. ½ ⅝ ¾
Per 100 feet $2.00 2.50 3.10, 10%

B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 feet	$2.15	2.70	3.25..net

Terry's Wrought Iron, ₱ foot ..... 4¾@5¢
Victor Track Rail, 7¢ ₱ foot ..... 50&2%
Carrier Steel Rail, ₱ foot ..... 4½¢
Moore's Wrought Iron 25%

Rakes—

Cast Steel, Association goods 65%
Cast Steel, outside goods ..... 60&10&10%
Malleable ..... 70&70&5%
Gibbs Lawn Rake ..... $12.00, 50&15%
Canton Lawn Rake ..... $9.00, 50&10%
Ft. Madison Prize Bow Brace and Peerless 65%
Fort Madison Steel Tooth Lawn Rake, $6.00 ..... 25%

Razors—

J. R. Torrey Razor Co 20%
Wostenholme and Butcher, $10.00 to £, 10%

Razor Strops—

Genuine Emerson ..... 60@60&5%
Imitation " ..... ₱ doz $2.00, 20&10&5%
Torrey's 20%
Badger's Belt and Com ..... ₱ doz $2.00
Lamont Combination ..... ₱ doz $4.00

Rivets and Burrs—

Iron, list Nov. 17, '87 ..... 50%
Copper ..... 50&10@50&10&5%

Rivet Sets ..... 50&10%

Rods—

Stair, Brass ..... 25&2%
Stair, Black Walnut ..... ₱ doz 40¢

Rollers—

Barn Door, Sargent's list ..... 60&10&10%
Acme Moore's Anti-Friction 55%
Union Barn Door Roller 70%

Rope—

Manufacturers' prices for large lots:

Manila...½ in. and larger	₱ ℔ 15½¢
Manila	¾ in. ₱ ℔ 16½¢
Manila	⅞ and 5-16 in. ₱ ℔ 16½¢
Manila Tarred Rope	₱ ℔ 15½¢
Manila, Hay Rope	₱ ℔ 15½¢
Sisal...½ inch and larger	₱ ℔ 12¾¢
Sisal	⅜ in. ₱ ℔ 13¼¢
Sisal	⅞ and 5-16 in. ₱ ℔ 13¾¢
Sisal, Hay Rope	₱ ℔ 12¾¢
Sisal, Tarred Rope	₱ ℔ 12¾¢
Sisal, Medium Lathe Yarn	₱ ℔ 11¾¢
Cotton Rope	₱ ℔ 15c@18c net
Jute Rope	₱ ℔ 8¢

1% for cash in 10 days.

Rules—

Boxwood ..... 80&10@80&10&10%
Ivory ..... 50@50&10%
Starrett's Rules and Straight Edges, Steel ..... 25&10%

Sad Irons—

From 4 to 10, at factory ...₱ 100 ℔, $2.40@$2.55
Self-Heating ..... ₱ doz $9.00 net
Self-Heating, Tailors' ... ₱ doz $18.00 net
Gleason's Shield and Toilet. 25%
Mrs. Pott's Irons ..... 40@40&10%
Enterprise Star Irons 40%
Combined Fluter and Sad Iron, ₱ doz, $15.00 ..... 15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England ..... 9¢, 15%
Mahony's Troy Pol. Irons 25%
Sensible ..... 20@20&5%
National Self-Heating ..... 30 %

Sand and Emery Paper and Cloth—

List April 19, 1886 ..... 40&10@50%
Sibley's Emery and Crocus Cloth 50%

Sash Cord—

Common ..... ₱ ℔, 10@11¢
Patent, good quality ..... ₱ ℔ 13@13½¢
White Cotton Braided, fair. ₱ ℔ 28@29¢
Common Russia Sash ..... ₱ ℔ 13½¢
Patent " ..... ₱ ℔ 15¢
Cable Laid Italian Sash ..... ₱ ℔ 22¢@23¢
India Cable Laid " ..... ₱ ℔ 13¢

Silver Lake—

A Quality, White, 50¢	10&10&5%
A Quality, Drab, 55¢	10&10&5%
B Quality, White, 50¢	20&10&5%
B Quality, Drab, 55¢	20&10&5%
C Quality, White (only)	26½¢@28¢
Sylvan Spring, Extra Braided, White, 34¢	
Sylvan Spring, Extra Braided, Drab. 30¢	
Semper Idem, Braided, White	30¢
Egyptian, India Hemp, Braided	25¢

Samson—

Braided, White Cotton, 50¢	30@30&5%
Braided, Drab Cotton, 55¢	30@30&5%
Braided, Italian Hemp, 55¢	30@30&5%
Braided, Linen, 80¢	30@30&5%

Sash Locks—

Clark's, No. 1, $10; No. 2, $8 ₱ gr.. 33⅓%
Ferguson's 33⅓%
Morris and Triumph, list Aug. 16, 1886. 60&2%
Victor ..... 60&10&2%
Walker's 10%
Attwell Mfg. Co. ..... 25&33⅓%
Reading ..... 66⅔&10@66⅔&10&10%
Hammond's Window Springs 40%
Common Sense, Jap'd, Cop'd and Br'zed ..... ₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal 30%
Kempshall's Gravity 60%
Kempshall's Model ..... 60@60&10%
Corbin's Daisy, list Feb. 15, 1886. ..70%
Payson's Perfect ..... 60@60&10%
Hugunin's Sash Balances ..... 25&5&2%
Hugunin's New Sash Locks. ..... 25&5&2%
Stoddard "Practical" 10%
Iwest' Patent ..... 60@60&10%
Lieache's, Nos. 100 and 110, ₱ gr $8; 105, $10.00 ..... 20&10%
Davis, Bronze, Barnes Mfg. Co. 50%
Champion Safety, list March 1, 1888 55c&55&5%
Security 70%
Buckeye ..... ₱ gro $4.80

Sash Weights—

Solid Eyes ..... ₱ ton $22.00

Sausage Stuffers or Fillers—

Milas' "Challenge," ₱ doz $20, 50&50&5%
Perry ..... ₱ doz, No. 1, $15.00; No. 0, $21.00 ..... 50&50&5%
Draw Cut No. 4, each $30.00 ..... 20%
Enterprise Mfg. Co. ..... 20&10&30%
Silver's ..... 40&10%

Saws—

Disston's Circular	45@45&5%
Disston's Cross Cuts	45@45&5%
Disston's Hand	25@25&5%

Extras sometimes given by jobbers.

Atkins' Circular Shingle and Heading ..... 50&10%
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 30¢
Atkins' Champion and Electric Tooth X Cuts ..... ₱ foot 27@28¢
Atkins' Hollow Back X Cuts. .₱ foot 18¢
Atkins' Mulay, Mill and Drag 40%
W. M. & C., Hand ..... 30&5@30&10%
W. M. & C., Champion X Cuts, Regular ..... ₱ foot 24@26¢
W. M. & C. X Cuts, Thin Back.. ₱ foot 27¢@29¢
Peace Circular and Mill ..... 45&10%
Peace Hand Panel and Rip 20&10@20&10&10%
Peace Cross Cuts, Standard... ₱ foot 25¢
Peace Cross Cuts, Thin Back ₱ foot 27@28¢
Richardson's Circular and Mill 45@45&10%
Richardson's X Cuts, No. 1, 39¢; No. 2, 27¢; No. 3, 24¢

Hack Saws—

Griffin's, complete. ..... 40&10&50%
Griffin's Hack Saw, Blades.... 40&10@50%
Star Hack Saws and Blades. 25%
Diamond Hack Saws and Blades 25%
Eureka and Crescent 25%

Saw Frames—

White Vermont ..... ₱ gro $9.00@10.00
Red, Polished and Varnished ..... ₱ doz $1.50, 25%

Saw Sets—

Stillman's Genuine...₱ doz $5.00@7.75, 40&5%
Stillman's Imita. ..... ₱ doz $3.25@5.25, 40&5@40&10%
Common Lever ..... ₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00. 40&10@50%
Leach's...No. 0, $8.00; No. 1, $15, 15@20%
Nash's ..... 20&10@20&10&10%
Hammer, Hotchkiss $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer ..... 30&5%
Bemis & Call Co.'s Plate 10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine ..... $13.00, 50&10%
Aiken's Imitation ..... $7.00, 55&5%
Hart's Pat. Lever 20%
Disston's Star, ₱9, No. 15, $5.50; 20@ 10@20&10&10%
Atkin's Lever, ₱ doz No. 1, $6.00; No. 2, $9.00
Atkin's Criterion ..... ₱ doz $7.50
Croissant (Keller), No. 1, $15.00; No. 2, $24.00 ..... 40&10%
Avery's Saw Set and Punch 40%
Am. Tool Co.'s Superior ..... ₱ doz $15, 50%

Saw Tools—

Atkin's Perfection, $15.00; Excelsior, $6.00 ₱ doz

Scales

Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161....₱ doz $6.75@$7.00
Union Platform, Plain ..... $2.10@2.20
Union Platform, Striped ..... $2.20@2.30
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka. 25%
Chatillon's Favorite 40%
Family, Turnbulls ..... 30@30&10%
Riehle Bros.' Platform 40%

Scale Beams—

Scale Beams, List Jan. 12, '82...50&10@ 50&10&5%
Chatillon's No. 1 ..... 40%
Chatillon's No. 2 ..... 50%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.) $6.50 ..... 30&10%
Box, 1 Handle ..... ₱ doz $4.00. 10%
Box, 2 Handle ..... ₱ doz $6.00, 10%
Defiance Box and Ship ..... 20&10%
Foot ..... 50&10@60%
Ship, Common ..... ₱ doz $3.50 net
Ship, R. I. Tool Co. 10%

Screen Window and Door Frames—

Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons...33⅓@ 33⅓&10%
Stearns' Frames and Corners. 25@25&10%

Screw Drivers—

Douglas Mfg. Co. ..... 20&10&10%
Disston's ..... 45&10%
Disston's Pat. Excelsior ..... 45&10%
Buck Bros. 30%
Stanley R. & L. Co.'s Varnished Handles ..... 65&10%
Black Handles. ..... 60&10%
Sargent & Co.'s No. 1 Forged Blade ..... 60&10&10%
Nos. 20, 30 and 60 ..... 66⅔&10&10%
Knapp & Cowles' No. 1 ..... 60&20&70%
No. 1 Extra ..... 60@60&10%
Nos. 00 & 4 ..... 50&5@50&10&5%
Stearns' ..... 25&10&5%
Gay & Parsons 35%
Champion ..... 25&10%
Clark's Pat. ..... 30@33⅓%
Crawford's Adjustable 30%
Ellrich's Socket and Ratchet ..25@25&10%
Allard's Spiral, new list 25%
Kolb's Common Sense ₱ doz $6.00, 25&10%
Syracuse Screw-Driver Bits. ..30&30&5%
Screw Driver Bits. ..... ₱ doz 50@75¢
Screw-Driver Bits, Parr's ..... ₱ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00. 25@25&10%
P. D. & Co.'s all Steel 50%

Screws—

Wood Screws—List March 1, 1889

Flat Head Iron	50%
Round Head Iron	40%
Flat Head Brass	45%
Round Head Brass	35%
Flat Head Bronze	45%
Round He Bronze	35%

Extras often given by jobbers

Machine—
Flat Head, Iron.....55%
Round Head, Iron.....50%
Bench and Hand—
Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₱ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Lag, Blunt Point.....75@75&10%
Coach and Lag, Gimlet Point.....75%
Bed.....25&5%
Hand Rail, Sargent's.....60%&10%
Hand Rail, H. & B. Mfg. Co...70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent..60&10@60&10&5%
Jack Screws, Stearns'.....40@40&10%

Scroll Saws—
Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cabinet Makers'.....25%
Barnes' Scroll Saw Blades.....35%

Scythe Snaths.....50&2%

Shears—
American (Cast) Iron...75&10@75&10&5%
Pruning...See Pruing Hooks and Shears.
Barnard's Lamp Trimmers...₱ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓%
First quality C. S. Trimmers..80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list.60%

Sheaves—
Sliding Door—
M. W. Co., list July, 1888..50&10&10&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%
Sliding Shutter—
R. & E. list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Ship Tools—
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%

Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phœnix, at factory. $4.00
Mule—
Add $1 ₱ keg to above prices.
Ox, Wrought—
Ton lots.....₱ ℔ 9¢
1000 ℔ lots.....₱ ℔ 9½¢
500 ℔ lots.....₱ ℔ 10¢

Shot—
(Eastern prices 2¢ off, cash, 5 days.
Drop, ₱ bag, 25 ℔.....$1.16
Drop, ₱ bag, 5 ℔.....29
Buck and Chilled, ₱ 25-℔ bag.....1.41
Buck and Chilled, ₱ 5-℔ bag.....34

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
Old Colony (Sanford Fork & Tool Co).20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
Payne Pettebone & Son, list January, 1886.....30%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%

Shovels and Tongs—
Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Skeins, Thimble—
Western list.....75&5@75&10%
Columbus Wrt. Steel, list Nov. 1, 1887.20%
Coldbrookdale Iron Co.....50&10%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Sieves—
Buffalo Metallic, S. S. & Co...50&25&10%
Shaker (Barler's Pat.) Flour Sifters.... ₱ doz $2.00
Electric.....₱ gr $18.00
Hunter's.....₱ gr $21.00
Smith's Adjustable Sifters....₱ doz $2.00
Smith's Adjustable Milk Strainer. ₱ doz $2.00
Smith's Adjustable T. & C. Strainer. ₱ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ₱ doz..	70¢	90¢
Mesh 20, Nested, ₱ doz..	85¢	$1.00
Mesh 24, Nested, ₱ doz..	$1.00	1.10

Slates—
School, by case.....40%

Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&2%
Covert, New Patent.....50&5&2%
Covert, New R. E.....60@2%
Covered Spring.....60&10&10%

Soldering Irons—
Covert's Adjustable, list Jan. 1, 1886. 35&2%

Spoke Shaves—
Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....20&10%

Spoke Trimmers—
Bonney's.....₱ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₱ doz. 55&10%
Douglas'.....₱ doz $9.00, 20%

Spoons and Forks—
Tinned Iron—
Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp, Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%
Silver-Plated—(4 mos. or 5% cash 30 days).
Meriden Brit. Co., Rogers.....50%
C. Rogers & Bros.....50%
Rogers & Bro.....50%
Reed & Barton.....50%
Wm. Rogers Mfg. Co.....50&10@50%
Simpson, Hall, Miller & Co.....50&10
Holmes & Edwards Silver Co.50&10&60%
L. Boardman & Son.....50&10%
Miscellaneous.
Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10%
No. 30 Silver Metal.....50&10%
No. 24 German Silver.....50&10
No. 50 Nickel Silver.....50%
No. 49 Nickel Silver.....50&10
German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....60&5@50&10&5% cash
Britannia.....60%
Boardman's Nickel Silver.....50 } 4 mos.
Boardman's Britannia Spoons, case lots.....60 }

Springs—
Elliptic, Concord, Platform and Half Scroll.....60@60&5%
Cliff's Bolster Springs.....25%

Squares—
Steel and Iron. } 75&10@80%
Nickel-Plated. }
Try Square and T Bevels...60&10@60&10&10%
Disston's Try Square and T Bevels.45&10%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares.....30&5%

Staples—
Fence Staples, Galvanized. } Same price as B'rb Wire.
Fence Staples, Plain. } See Trd. Rep.

Steelyards.....40&10@50%

Stocks and Dies—
Blacksmith's
Waterford Goods.....30&5@30&10%
Butterfield's Goods.....30&5@30&10%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates....33⅓&5@40%

Stone—
Hindostan No. 1, 3¢; Axe, 3¾¢; Slips No. 1, 4½¢
Sand Stone.....₱ ℔ 2½¢
Washita Stone, Extra.....₱ ℔ 19@20¢
Washita Stone, No. 1.....₱ ℔ 14@15¢
Washita Stone, No. 2.....₱ ℔ 10@11¢
Washita Slips, No. 1, Extra..₱ ℔ 36@38¢
Washita Slips, No. 1.....₱ ℔ 24@25¢
Arkansas Stone, No. 1, 4 to 6 in ₱ ℔ $1.50
Arkansas Stone, No. 1, 6 to 9 in ₱ ℔ $1.85
Turkey Oil Stone, 4 to 8 in.....₱ ℔ 40¢
Turkey Slips.....₱ ℔ $1.00@1.50
Lake Superior, Chase.....₱ ℔ 16¢
Lake Superior Slips, Chase...₱ ℔ 31@32¢
Seneca Stone, Red Paper Brand....₱ ℔ 18@20¢
Seneca Stone, High Rounds..₱ ℔ 20@25¢
Seneca Stone, Small Whets..₱ gro $24.00

Stove Polish—
Joseph Dixon's.....₱ gro $6.00,10%
Gem.....₱ gro $4.50, 10%
Gold Medal.....₱ gro $6.00, 25%
Mirror.....₱ pro $6.00, —%
Lustro.....₱ gro $4.75
Ruby.....₱ gro $3.75
Rising Sun, 5 gro lots.....₱ gro $5.50
Dixon's Plumbago.....₱ ℔ $5.00
Boynton's Noon Day, ₱ gro.....13.00
Parlor Pride Stove Enamel..₱ gro 3 cans
Yates' Liquid, 2 3 5 10 gal....8¢
₱ gal ...$0.90 .80 .70 .60
Yates Standard Paste Polish, 10-℔ cans, ₱ ℔ 15¢
Jet Black.....₱ gro $3.50
Japanese.....₱ gro $3.50
Fireside.....₱ gro $2.50
Diamond O. K. Enamel.....₱ gro $19.00
Bonnell's Liquid Stove Polish..₱ gro $9.00
Bonnell's Paste Stove Polish..₱ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ℔ cans.....12½¢
Black Jack Water Paste, 5 and 10 ℔ cans.....12½¢
Nickel Plate Paste.....₱ gro $6.00

Tacks, Brads, &c.—
List, Jan. 2, 1888.—[*Note.*—Some manufacturers are selling Tacks at slightly higher prices than those named]:
American Iron Carpet.....80@80&5%
Steel Carpet.....80@80&5%
Swedes Iron Carpet.....80@80&5%
American Iron Cut.....75@75&10%
Swedes Iron.....75&5@75&10%
Swedes Iron, Upholsterers'. 75&10@75&10&5%
Tinned Swedes Iron....75&10@75&10&5%
Tinned Swedes Iron, Upholsterers'. 75&10@75&10&5%
Gimp and Lace.....75&10@75&10&5%
Tinned Gimp and Lace.75&10@75&10&5%
Swedes Iron Trimmers'.75&10@75&10&5%
Swedes Iron Miners'...75&10@75&10&5%
Swedes Iron Bill Posters' or Railroad. 75&10@75&10&5%
Swedes Steel (Swedes Iron price list). 80@80&5%
Copper Tacks.....50&10%
Copper Finishing, Trunk and Clout Nails.....50&10%
Finishing Nails.....70&10@70&10&10%
Trunk and Clout Nails.70&10@70&10&10%
Tinned Trunk and Clout Nails, 70&10@ 70&10&10%
Basket Nails.....70&10@70&10&10%
Common and Patent Brads, 70&10@70& 10&10%
Hungarian Nails.....70&10@70&10&10%
Chair Nails.....70&10@70&10&10%
Zinc Glaziers' Points.....50@50&5%
Cigar Box Nails.....50&10@50&10&5%
Picture-Frame Points..50&10@50&10&5%
Looking-Glass Tacks..50&10@50&10&5%
Leathered Carpet.....50&10@50&10&5%
Brush Tacks.....50&10@50&10&5%
Shoe Finders,' List Jan. 2, 1888, 10&10@ 10&10&5%
Lining and Saddle Nails, List Jan. 1, 1886:
Silvered.....30&10&10%
Japanned.....20&10&10%
Double-Pointed Tacks.....85%
Wire Carpet Nails.....50&10%
Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tap Borers—
Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10&30%
Clark's.....33⅓@35%

Tapes, Measuring—
American.....25&10%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—
Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale—Steel
Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—
Shears and Snips (P. S. & W.).....20@25%
Punches, see Punches.
Snips, J. Mallinson & Co.....33⅓%

Tinware—
Stamped, Japanned and Pierced, list Jan. 20 1887.....75@75&5

Tire Benders, Upsetters, &c—
Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Tobacco Cutters—
Champion.....20&10@30%
Wood Bottom.....₱ doz $5.00@$5.25
All Iron.....₱ doz $4.25
Nashua Lock Co.'s ₱ doz, $18.00 50@55%
Wilson's.....55%
Sargent's.....₱ doz, $24, 55&10%
Acme.....₱ doz, ₱20.00,40%

Transom Lifters—
Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Jan. 1, 1887.
Bronzed Iron Rods.....50&10&2
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's Universal.....40@40&10%

Traps—
Game—
Newhouse.....35@40&5%
Oneida Pattern.....70@70&5%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ₱ doz holes, 11@12¢
Mouse, Round Wire.....₱ doz $1.50, 10%
Mouse, Cage, Wire.....₱ doz $2.50, 10%
Mouse, Catch-'em-alive.....₱ dz $2.50, 15%
Mouse, "Bonanza".....₱ gr $10.00
Mouse Delusion.....₱ gr $15.00
Rat, "Decoy".....₱ gr $10.00, 10%
Ideal.....₱ gr $10.00
Cyclone.....₱ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₱ doz 90¢
In full cases.....₱ doz 75¢

Trowels—
Lothrop's Brick and Plastering.....25%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering, 25@25&10%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Triers—
Butter and cheese.....25%

Trucks, Warehouse, &c.—
B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	R.
No. 9, ¼ and ½ ℔ Balls	22¢	30¢
No. 12, ¼ and ½ ℔ Balls	21¢	29¢
No. 18, ¼ and ½ ℔ Balls	18¢	28¢
No. 24, ¼ and ½ ℔ Balls	18¢	28¢
No. 36, ¼ and ½ ℔ Balls	16¢	27¢

No. 264, Mattrass, ¼ and ½ ℔ Balls.48@50¢
Chalk Line, Cotton, ½ ℔ Balls.....25¢
Mason Line, Linen, ½ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine).....11½¢
3-Ply Hemp, 1 ℔ Balls.....12¢@12¼¢
3-Ply Hemp, 1½ ℔ Balls.....11¢@11¼¢
Cotton Wrapping, 5 Balls to ℔ ..15¢@16¢
2, 3, 4 and 5-Ply Jute, ½ ℔ Balls.....10¢
Wool.....6½¢@6¾¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..18¢

Vises—
Solid Box.....60@60&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20&5@25%
Simpson's Adjustable.....40%
Moore's.....20%
Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....60%&10%
Hopkins'.....₱ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Combination Hand Vises...₱ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%

Wagon Boxes—
Per ℔.....2½¢

Wagon Jacks—
Daisy.....25%

Washer Cutters—
Smith's Pat.....₱ doz $12.00, 20&10&10%
Johnson's.....₱ doz $11.00, 33⅓%
Penny's, ₱ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₱ doz $16.00, 60&10%
Bonney's.....30&10%

Washers—

Size	⅛	5-16	⅜	½	⅝	¾	1
Washers	7	5¾	4¾	3¾	3¼	3⅛	3¼

In lots less than 200 ℔, ₱ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₱ ℔ 3½¢
Steel.....₱ ℔ 4 ¢

Well Buckets, Galvanized—
Hill's.....₱ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad.....₱ doz, 14 qt, $4.25@$4.50
Whiting's Flat Iron Band.....$4.25@4.50
Whiting's Wired Top..₱ doz $4.00@.4.25

Well Wheels—
8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire—
Iron—
Market,
Br. & Ann., Nos. 0 to 18....70&10@75%
Cop'd, Nos. 0 to 18.....70@70&5%
Galv., Nos. 0 to 18.....55&5%
Tin'd, Tinned list Nos. 0 to 18.....67½% Stone,
Br. and Ann'd, Nos. 16 to 18, 72½@ 72½&5%
Bright and Ann'd, Nos. 19 to 26, 75@ 75&5%
Br. and Ann'd, Nos. 27 to 36, 75@10&5%
Tinned.....70@70&10%
Tinned Broom Wire.....70&5@70&10%
Galvanized Fence.....65%
Annealed Fence, Nos. 8 and 9.....75%
Annealed Grape, Nos. 10 to 14.....75%
Brass, list Jan. 18, 1884.....15&20%
Copper, list Jan. 18, 1884.....25%
Barb Fence.....See Trade Report
Wire on Spools.....65%
Malin's Steel and Tin'd Wire on Spools, 40%
Malin's Brass and Cop. Wire on Spools 30%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £, 30%
Steel Music Wire, Nos. 12 to 30..55¢ ₱ ℔
Picture Wire.....New list, 50%
Barb Wire Safety Guards, ₱ 1000, $9.00, 25%
Wire Clothes Lines, see Lines.

Wire Cloth, Netting, &c.
Painted Screen Cloth, good quality, ₱ 100 sq. ft., $1.80 @ $1.90
Galvanized Wire Netting....75@75&5%

Wire Goods—
See Bright Wire Goods.

Wire Rope—
List May 1, 1886.
Iron.....30%
Cast Steel.....40%

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....55&3%
Coes' "Mechanics".....55&10&3%
Girard Standard.....70&10%
Machinists', Sterling Wrench Co..70&10%
Lamson & Sessions' Engineers'....60&10%
Lamson & Sessions' Standard.....70&10%
Goes' Pattern, Wrought..... } 80@80&5%
Girard Agricultural..... }
Lamson & Sessions' Agric'l.. }
Sterling Wrought..... }
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....₱ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....60&3%
Acme, Nickeled.....50&3%
Walker's.....55&3%
Diamond Steel.....55&3%

Wringers, Clothes—
List March 11, 1889, 2% cash.

Wrought Goods—
Staples, Hooks, &c., list Jan. 12, 1886. 80&20@80&25%

CURRENT METAL PRICES.

MAY 22, 1889.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:
¾ to 2 in. round and square.. } ₩ lb 1.90 @ .. ¢
1 to 6 in. x ⅝ to 1 in..... }
Refined Iron:
¾ to 2 in. round and square.. }
1 to 4 in. x ⅜ to 1½ in..... } ₩ lb 2.00 @ 2.10¢
4½ to 6 in. x ⅜ to 1 in ..... }
1 to 6 in. x ¼ and 5-16 ..... ₩ lb 2.20 @ 2.30¢
Rods—⅝ and 11-16 round and sq.. ₩ lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12..... ₩ lb 2.20 @ 2.30¢
"Burden Best" Iron, base price.. ₩ lb 3.00 @ ... ¢
Burden's "H. B. & S." Iron, base price..... ₩ lb 2.80 @ ....¢
"Ulster"..... lb lb 3.10 @ ....¢
Norway Rods ..... 4.00 @ 5.00¢

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots.....	2½¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots.....	5¢

Sheet Iron from Store.

	Common American.		R. G.		Cleaned.
10 to 16.....	₩ lb 2.75	@ 2.80¢	3.25	@ .....¢	
17 to 20.....	₩ lb 2.85	@ 3 00¢	3.25	@ 3.50 ¢	
21 to 24.....	₩ lb 3.00	@ 3.10¢	3.50	@ .....¢	
25 and 26....	₩ lb 3 20	@	3.50	@ .....¢	
27.....	₩ lb 3.35	@ 3.37½¢	3.75	@ .....¢	
28.....	₩ lb 3.50	@ ...¢	4.00	@ .....¢	
	B. B.		2d qual.		
Galv'd, 14 to 20,	₩ lb, 4.50	@	4.38	@ .....¢	
Galv'd, 21 to 24,	₩ lb, 4.87½	@	4.75	@ .....¢	
Galv'd, 25 to 26,	₩ lb, 5 25	@	5.12	@ .....¢	
Galv'd, 27.....	₩ lb, 5.62½	@	5.48	@ .....¢	
Galv'd, 28.....	₩ lb, 6.00	@	5.85	@ ....¢	
Patent Planished.....	₩ lb A 10¢		B, 8¢		
Russia.....	₩ lb 9½¢	@ 10¢			
American Cold Rolled B. B.....	₩ lb 5¢	@ 7¢			

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged, Cast.....	₩ lb 16 ¢
Best Double Shear.....	₩ lb 15 ¢
Blister, 1st quality.....	₩ lb 12 ¢
German Steel, Best.....	₩ lb 10 ¢
2d quality.....	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality.....	₩ lb 15 ¢
2d quality.....	₩ lb 14 ¢
3d quality.....	₩ lb 12½¢

METALS.

Tin.

	Per lb
Banca, Pigs.....	23 ¢
Straits, Pigs.....	22 ¢
English, Pigs.....	23¾¢
Straits in Bars.....	24 ¢

Tin Plates.

	Charcoal Plates.—Bright.		Per box.
Melyn Grade.....	IC, 10 x 14..	$5.75 @	$6.00
" "	IC, 12 x 12..	6.00 @	6.25
" " ..	IC, 14 x 20..	5.75 @	6.00
" "	IC, 20 x 28..	12.00 @	12.50
" "	IX, 10 x 14..	7.25 @	7.50
" "	IX, 12 x 12..	7.50 @	7.75
" "	IX, 14 x 20..	7.25 @	7.50
" "	IX, 20 x 28..	15.00 @	15 50
" "	DC, 12½ x 17..	5 50 @	5.75
" "	DX, 12½ x 17..	7.00 @	7.25
Cali and Grade.....	IC, 10 x 14..	5.75 @	6.00
" "	IC, 12 x 12..	6.00 @	6.25
" "	IC, 14 x 20..	5.75 @	6.00
" "	IX, 10 x 14..	7.25 @	7.50
" "	IX, 12 x 12..	7.50 @	7.75
" "	IX 14 x 20.	7.25 @	7.50
Allaway Grade.....	IC, 10 x 14..	5.00 @	5.12½
" "	IC, 12 x 12..	5.12½ @	5.25
" "	IC, 14 x 20..	5.00 @	5.12½
" "	IC, 20 x 28..	11.00 @	....
" "	IX, 10 x 14..	6.00 @	....
" "	IX, 12 x 12..	6.25 @	....
" "	IX, 14 x 20..	6.00 @	...
" "	IX, 20 x 28..	12.00 @	....
" " ...	DC, 12½ x 17..	4.75 @	5.00
" " ..	DX, 12½ x 17..	5.75 @	6.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20..	$4.75	@	$5.00
10 x 20..	7.25	@	7.50
20 x 28..	9.75	@	10.25
IX, 10 x 14, 14 x 20..	5.50	@	5.75
BV Grade.—IC, 10 x 14, 14 x 20..	4.40	@	4.60

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20..	$4.35	@	$4.62½
20 x 28.....	8.75	@	9.25
IX, 14 x 20.....	5.40	@	5.62½
20 x 28.....	11.00	@	11.37½
Abecarne Grade.—IC, 14 x 20....	4.25	@	4.50
20 x 28....	8.45	@	9.00
IX, 14 x 20...	5.25	@	5.50
20 x 28...	10.50	@	10.80

Tin Boiler Plates.

IXX, 14 x 26.....	112 sheets.....	$12.50 @ $12.75
IXX, 14 x 28.....	112 sheets....	12 75 @
IXX, 14 x 31	112 sheets	14.25 @

Copper.

DUTY: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.

Ingot.

Lake	@ 13¼¢
"Anchor" Brand. ..	@ 12¾¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 10, 1887, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72	—	25	25	25	26	27	28	31	33
30	—	72	25	25	25	26	28	30	34	...
36	96	—	25	25	25	27	29	33	36	....
36	—	96	25	25	26	28	30	34	38	....
48	96	—	25	25	27	29	31	35	....	....
48	—	96	25	25	28	30	32	36	....	....
60	96	—	25	26	30	32	37	....	....	....
60	—	96	26	26	31	....	....	....	....	....
84	96	—	26	27	..	....	....	....	....	....
84	—	96	27	28	....	....	....	....	....	....
Over 84 in. wide			28	30	....	....	....	....	....	....

All Bath Tub Sheets.....	16 oz.	14 oz.	12 oz.	10 oz.
Per pound.....	$0.28	0.30	0.32	0 35

Bolt Copper, ⅝ inch diameter and over, per pound..... 25¢
Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.
Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.
Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier.....	28¢
12 ounce and up to 14 ounce to square foot.....	29¢
10 ounce and up to 12 ounce.....	31¢

Circles less than 8 inches diameter 2 cents per pound additional.
Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each.....	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in (sheets 14 in. x 60 in.), each.	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each.....	12¢
Tinning sheets on one side, other sizes, per square foot.....	2½¢

For tinning both sides double the above prices.

Planished Copper.

Planished Copper List May 5, 1888 ....Net

Seamless Brass and Copper Tubes.

New list 3¢ below the following:

O. G.	N. G.	⅜	⅛	⅝	¾	⅞	1	1¼
8-14	6-12	38	34	31	30	29	28	25
15	13	39	34	32	31	30	29	26
16	14	40	35	33	32	31	30	26
17	15	41	36	34	33	32	31	27
18	16	43	37	35	33	31	31	28
19	17	44	38	36	35	34	33	30
20	18-19	45	40	38	37	36	35	32
21	20	47	42	40	39	38	37	35
22	21	49	43	41	40	40	38	37
23	22	51	45	43	42	41	40	40
24	23	54	47	45	44	42	41	42
25	24	57	50	47	46	45	44	46

Copper, Bronze and Gilding Tube, 2¢ ₩ lb additional.

Brazed Brass Tubing. (To No. 20, inclusive.)

Above 5-16 inch to 3 inch, inclusive.....	35¢
Plain, above 3 inch.....	45¢
Plain, 5-16 inch.....	45¢
Plain, ¼ inch.....	60¢
Plain, 3-16 inch.....	$1.00
Plain, ⅛ inch.....	1.50
Fancy Tubing, Brass, to No. 20, inclusive.....	43¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list.....	20 %

Roll and Sheet Brass.

Discount from list. ..... .10 @ 15 %

High Brass Rods.

Over 1 inch diameter.....	27¢
½ inch to 1 inch diameter, both inclusive.....	24¢
No. 8 and less than ½ inch diameter.....	26¢
Smaller than No. 8.....	30¢

Hexagon, Octagon and Square, 2¢ ₩ lb advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	5¼¢ @ 5¾¢
"Bergenport".....	8¢
"Bertha".....	7¾ @ 8¢

Zinc.

Duty: Sheet, 2½¢ ₩ lb.

600 lb casks.....	6½¢
Per lb	7½¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets, 3¢ ₩ lb.

American	4¼¢
Newark	4¼¢
Bar.....	4¾¢
Pipe, subject to trade discount.....	55½¢
Tin-Lined Pipe, subject to trade discount.....	15¢
Block Tin Pipes, subject to trade discount.....	45¢
Sheet, subject to trade discount.....	6½¢

Solder.

½ @ ½ (Guaranteed).....	14¢
Extra Wiping	13¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson.....	₩ lb 13½¢ @ 14¢
Hallett's	" @ 13¢

Fittings.

Cast Iron Fittings, Black and Galvanized, Standard sizes.....	70&10 %
Cast Iron Fittings, Bushings and Plugs.....	75&10 %
Cast Iron Fittings, Flanges.....	70&10 %
Malleable Iron Bushings.....	75&10 %
Malleable Iron Unions.....	67½ %
Malleable Iron American Unions.....	55 %
Wrought-Iron Nipples.....	70&10 %
Wrought-Iron Couplings.....	70 %
Wrought-Iron Long Screws.....	70 %
Casing Fittings.....	60 %
Malleable Iron Fittings.....	25 %

Valves, Cocks, &c.

Iron Body Valves.....	70 %
Throttle Valves, Iron Body.....	70 %
All-Iron Valves.....	65 %
Compression Gauge Cocks.....	60 %
Mississippi Gauge Cocks.....	60 %
Register Gauge Cocks.....	65 %
Air Cocks and Radiator Air Cocks.....	65 %
Steam Gauge Cocks.....	60 %
Oil Cups, Plain, Elbow, new pattern, T and Lever Handle.....	65 %
Globe Oil Cups.....	55 %
Common Lubricators.....	65 %
Lubricators with Air Cocks.....	65 %
Iron Body Lubricators.....	60 %
Steam Whistles.....	65 %
Whistle Valves.....	65 %
Water Gauges.....	65 %
Brass Expansion Joints.....	55 %
Pump Valves.....	55 %
Soldering Unions.....	65 %
Soldering Nipples.....	70 %
Brass Unions (Union Joints).....	65 %
Radiator Nipples.....	60 %
Fusible Plugs.....	60 %
Oil Pumps.....	55 %
Self-Acting Air Valves.....	65 %
Vacuum Valves.....	55 %
Steam Swing Joints.....	55 %
Iron Strainers.....	55&10 %
Jenkins' Iron Body Valves, except Gate Valves.....	60&10 %
Jenkins' All-Iron Valves, except Gate Valves.....	60 %
Jenkins' Iron Body Gate Valves.....	55 %
Jenkins' All-Iron Gate Valves	55 %
Iron Cocks, all Iron.....	65 %
Iron Cocks, with Brass Plugs.....	65 %
Brass Globe, Angle and Cross Valves.....	65 %
Brass Globe Valves, Finished.....	65 %
Brass Globe and Angle Valves, hose outlet.....	65 %
Brass Garden Hose Valves.....	65 %
Brass Caps for Hose Valves.....	60 %
Brass Horizontal, Vertical and Angle Check Valves.....	65 %
Brass Safety Valves.....	65 %
Brass Safety Valves, low pressure.....	65 %
Brass Safety Valves, low pressure, with balance weight.....	65 %
Brass Butterfly Valves.....	55 %
Brass Throttle Valves.....	55 %
Brass Radiator Valves.....	65 %
Brass Radiator Valves, Jenkins'.....	65 %
Brass Jenkins' Globe, Angle, Cross, Corner, Safety and Check Valves.....	65 %
Brass Jenkins' Gate Valves.....	60 %
Brass Steam Cocks.....	60 %
Brass Gas, Meter and Union Meter Cocks.....	60 %
Brass Fittings, Rough.....	60 %
Brass Fittings, Finished.....	25 %
Brass Bushings.....	60 %

Plumbers' Brass Work.

Ground Key Work, Rough.....	60 %
Ground Key Work, Finished.....	55 %
Compression Work.....	60 %
Compression Work, Grundy, Heavy Pattern.....	55 %
Chain Stays.....	60 %
Iron Boiler Couplings, Ground Face, per set $1.....	net
Basin Plugs.....	60 %
Sink or Bath and Wash Tray Plugs.....	60 %
Basin Clamps.....	55 %

Paints.

Black, Lamp—Coach Painters'...	...₩ lb 22 @ 24¢
" Ordinary.....	6¢
Black, Ivory Drop, fair.....	12 @ 15¢
" " best.....	23¢
Black Paint, in oil.....kegs, 8¢; assorted cans, 11¢	
Blue, Prussian, fair to best...	40 @ 55¢
" " in oil.....	45 @ 55¢
" Chinese dry	70¢
" Ultramarine.....	18 @ 30¢
Brown, Spanish.....	1¼¢
" Van Dyke.....	10 @ 12¢
Dryers, Patent American..ass'd cans, 9¢; kegs, 7¢	
Green, Chrome	15 @ 25¢
Green, Chrome in oil.....	14 @ 18 @ 25¢
Green, Paris.....	good, 20¢; best, 25¢
Green, Paris in oil	good, 30¢; best, 35¢
Iron Paint, Bright Red.....	₩ lb 2½¢
Iron Paint, Brown	₩ lb 1½¢
Iron Paint, Purple	₩ lb 3¢
Iron Paint, Ground in oil, Bright Red....	₩ lb 6½¢
Iron Paint, Ground in oil, Red	₩ lb 5½¢
Iron Paint, Ground in oil, Brown.....	₩ lb 5½¢
Iron Paint, Ground, Purple.....	₩ lb 6¢
Litharge.....	6½¢
Mineral Paints	2 @ 4¢
Orange Mineral	10¢
Red Lead, American	6½¢
Red Venetian (Eng.) dry...	$1.65 @ $1.70